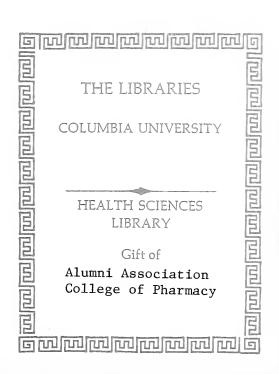
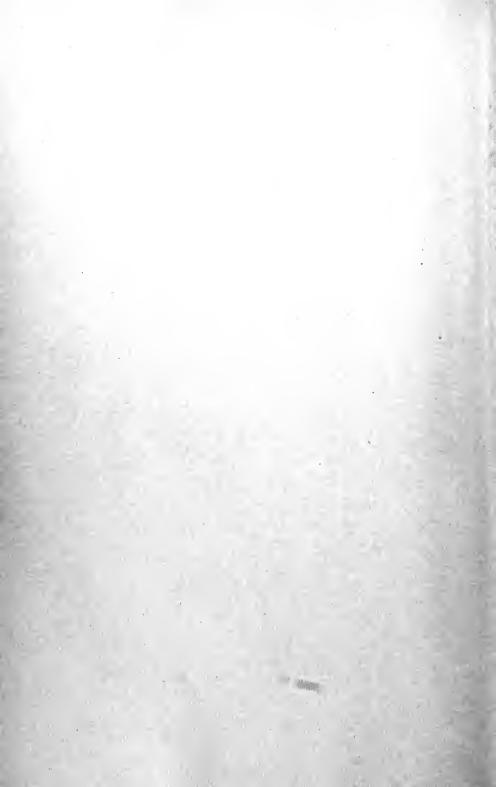


# Columbia University in the City of Aew York

# PRESIDENT'S ANNUAL REPORT



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#### **ELEVENTH**

#### ANNUAL REPORT

OF

## PRESIDENT LOW

TO THE

## **TRUSTEES**

October 1, 1900

NEW YORK
PRINTED FOR THE UNIVERSITY
1900

FRC 6/1/ 2A 982 .N48 07 1900 To the Trustees of Columbia College in the City of New York:

I have the honor to submit herewith my annual report for the academic year ending June 30, 1900.

I regret to be obliged to record the death of Frederic Bronson, a Trustee of the University, who died at Palermo, Sicily, after a brief illness, on March 29, 1900. Mr. Bronson was graduated from the College in the Class of 1871, and from the School of Law in 1873. He was elected a Trustee January 4, 1897. During the brief period of his service, he gave to the affairs of the University the conscientious attention which marked his relation to everything in which he became interested. He served upon one or two of the most important Committees of the Board, showing himself both regular in attendance and painstaking in relation to every matter that came up for consideration.

The death of Mr. Cornelius Vanderbilt also occurred during the year under review, on September 12, 1899; but, as it took place during the vacation, it was commented upon in my last annual report.

The vacancies thus caused among the Trustees have been filled by the election of Mr. Francis S. Bangs, a graduate of the College of the Class of 1878, and of the School of Law of the Class of 1880; and of Mr. Benjamin Aymar Sands, a graduate of the College of the Class of 1874, and of the School of Law of 1876.

I

I have to report, also, the death, on January 15, 1900, of Thomas Egleston, E.M., LL.D., Emeritus Professor of Mineralogy and Metallurgy. To Dr. Egleston is conceded, by unanimous consent, the credit of having proposed the establishment of the School of Mines, so that he is often spoken of as the Founder of that School. He was graduated from Yale College in the Class of 1854, and afterward studied at the École des Mines in Paris. March, 1863, he published a plan for a School of Mines and Metallurgy in New York City. This plan having been accepted in substance by the Trustees of Columbia College, the School was opened on the 15th of November, 1864, twenty-four students presenting themselves on the first day. The School of Mines has retained its primacy in this country as a school for the education of mining engineers and metallurgists from that day to this. For a long time the only School of Mines in the country, it is still one of the largest, and it has equipped and sent into the field one third of all the mining engineers in the country. At the present time, it is one of four mining schools in the world whose degree is accepted in the mining fields of South Africa, in lieu of an examination, as evidence of competency to practise the profession there. The seed which Dr. Egleston sowed has borne valuable fruit in other directions also. By the side of the School of Mines, and growing out of it, this University maintains to-day a School of Chemistry, a School of Engineering, and a School of Architecture. range of the School of Engineering is as wide as the profession, courses being offered in civil engineering,

in sanitary engineering, in electrical engineering, and in mechanical engineering. In the last ten years, this group of schools has almost doubled its membership. It is evident, therefore, that the name of Thomas Egleston is one to be held in high honor, not only in the halls of Columbia University, but throughout the country wherever the names of men are cherished who have laid permanent foundations for the benefit of posterity. Dr. Egleston, during his life or by his will, gave to the University most of his scientific books and periodicals; and also his valuable collection of minerals, which had been the object of his assiduous and loving care during his whole active life. The Trustees, in recognition of these gifts and of Dr. Egleston's services, and remembering that mineralogy was always his chief interest, have called the Museum of the Department of Mineralogy the "Egleston Mineralogical Museum."

It appears to be becoming to record here, also, although, as a matter of strict chronology, it belongs to the next academic year, the death of our Chaplain Emeritus, the Rev. Cornelius R. Duffie, S.T.D., of the Class of 1841, which took place at Litchfield, Conn., July 8, 1900. From the foundation of the College until 1857, the President conducted the chapel services. In 1857, Dr. Duffie was appointed Chaplain, and continued in active service until 1891, when he became Chaplain Emeritus. Dr. Duffie's duty as Chaplain was limited to the reading of the service at morning prayers. He was not expected, therefore, to become a force in the life of the institution. Since his day, the Chaplain has entered into more vital relations to the students, having office

hours at the University during which he may be called upon at their pleasure. It many other ways, also, the Chaplain now makes himself a force for good in the life of the University. Probably no day passes on which he is not visited by one or more of the students.

At the beginning of the academic year, Mr. Edward A. Darling retired from the office of Superintendent of Buildings and Grounds and was succeeded by his Assistant, Mr. Frederick A. Goetze. It was Mr. Darling's good fortune to occupy this position during the important period of the development of our present site and of the removal of the University from 49th Street to Morningside Heights. His services in this connection were of the highest value; for he brought to bear upon the serious problems of the period not only great intelligence, but also a quality of foresight quite unusual. His efficiency, too, was of a very high order. He retired from the service of the University to become the confidential engineer of Mr. Thomas A. Edison.

On the 1st of January, 1900, the Assistant Secretary of the University, Mr. John F. Plummer, Jr., resigned to go into business. Mr. Plummer was appointed Assistant Secretary of the University February 3, 1896. During his whole term, he served with great efficiency and acceptability. He has been succeeded by Mr. Frederick P. Keppel, a graduate of the College of the Class of 1898.

On the 22d of February, the Trustees held a public reception, during which all of the buildings of the University were thrown open for inspection. It is estimated that the buildings were visited by between

seven and eight thousand people. Everything was in good order and it is believed that the University made a favorable impression on all who came to see it. There is much to be said in favor of giving to the people of the city an annual opportunity like this to acquaint themselves with our equipment; for it cannot be doubted that the better the University is known the more highly it will be appreciated by the community.

The year under review has been a year of exceptionally large fruition. Three or four things have been accomplished that are certain to exercise great influence upon the future; but when Progress these things are considered in detail, they are seen to be only the natural culmination of movements which have been in progress, more or less consciously, for a number of years. New agreements have been made with Barnard College and with Teachers College, by which both of these corporations, while retaining their separate existence, have become in fact as completely a part of the educational system of the University as though the work that they are doing were being carried on under the University charter. It is convincing evidence of the flexibility and virtue of the organization that has been developed by the Trustees, during the last ten years, that the University can thus assimilate the work of institutions like these, not only without embarrassment either to itself or to them, but, on the contrary, with distinct advantage to all the corporations concerned, and without depriving any one of them of its independent life.

Incidentally these agreements determine the relation of the University to the higher education of women and to the professional training of teachers in a way that cannot be otherwise than satisfactory to those who have these interests at heart. Barnard College becomes a separate College for Women, having its own Faculty which controls the instruction leading to the degree of Bachelor of Arts. This degree is conferred by the University upon the women who graduate from Barnard College, in the same way and upon the same conditions as it is conferred by the University upon the men who graduate from Columbia College. The relation of Barnard College to the University Council, and, through it, to the educational policy of the University, is in substance the same as the relation of Columbia College. the other hand, women who have taken the first degree will hereafter become candidates for the degrees of Master of Arts and Doctor of Philosophy as students of the University itself, instead of, as heretofore, as graduate students of Barnard College.

For Teachers College, also, the agreement secures the same status in the educational system of the University (except that the corporation remains distinct) as the College of Physicians and Surgeons enjoys, although that has become an integral part of the University Corporation. The text of these agreements is appended to this report. Their most important features have been already pointed out. It follows, as an incident of the situation, that appointments made by any of these corporations contribute to the opportunities enjoyed by the students of the others. The only new appointment of professorial rank which has been made this year by the University Corporation is that of Prof. Herbert Gardiner Lord, Professor of Philosophy, who is to have charge of the elementary

work in philosophy, including psychology, logic, and ethics, both in Columbia College and Barnard College. In the expense of this appointment Barnard College shares, and Barnard College is besides responsible for the appointment of Prof. William P. Trent as Professor of English. Teachers College has appointed Mr. Samuel Train Dutton as Professor of School Administration and Superintendent of the Teachers College Schools, and Prof. Gonzales Lodge as Professor of Latin and Greek. these gentlemen offer courses that are open to students of the University. Professors of the University Corporation, on the other hand, offer courses that are open to students of Barnard College and of Teachers College. Thus the growth of any one member of the group ministers to the growth of all the others. I do not know whether a similar system has been developed elsewhere. It is certainly well worthy of consideration by those having similar problems to deal with.

Arrangements have also been made during the year for the first Summer Session of the University, to begin July 5, 1900. For convenience, and in order to report upon the matter while it is still fresh, the details will be given in their proper place in this report. Here it suffices to call attention to this new departure as a natural development of the educational activity of the University during the last few years. It is gratifying to report that a sufficient number of students have been in attendance to make the Summer Session self-supporting.

In the College a comparatively slight modification in the requirements for admission has made it

possible for the College hereafter to accept graduates from any course in the public high-schools, instead of graduates from the so-called classical course only. No substantial change has been made in the requirements for graduation; but, because of this change in the requirements for admission, it has been made possible for students who enter College, without offering Latin, to begin the study of Latin in the College. Such students must study Latin in the College for at least three years; taking it, in their first year, for five hours a week. Students who enter upon Latin are obliged to study it in the College for one year only, for three hours a week. Students who do not offer Latin, at entrance, are obliged to offer the equivalent, so far as time of preparation is concerned, either in mathematics, in the modern languages, in history, or in the natural sciences. Such a change of requirement seems, on the surface, to be unimportant; but, as a matter of fact, the consequences of the change are likely to be far-reaching and profound. It relates the work of the College to the work of the public high-schools, all along the line, in a natural and effective way; so that the articulation between the high-schools and the College is complete. In view of the fact that many of the students of the public high-schools pursue courses containing neither Latin nor Greek, it has not before been perceived how to articulate their courses with the courses of colleges giving only one degree, without compelling the abandonment by such colleges of every requirement for classical training. The solution of the problem adopted by the Faculty of Columbia College has received the warmest commendation of the high-school

men to whose attention it has been called. opinion has been expressed in several quarters that, if the plan should be accepted by the colleges generally, hundreds of students every year will pass from the high-schools to the colleges, who, under existing conditions, find themselves unable to go forward with their studies. In the absence of such an articulation between the high-school and the college, only those high-school students who at the beginning choose the classical course are equipped to enter college; and this choice must be made four years before they go to Students of other courses who may make up their minds midway in the course that they would like to go to college, or who learn only shortly beforehand that they can go, have heretofore found themselves unable to enter college as candidates for the degree of Bachelor of Arts because they have not studied the right things. The change made in the entrance requirements of Columbia College, although so slight, gives precisely the necessary flexibility, and permits students who have followed any high-school course for four years after the completion of their grammarschool work, to go forward with their education in college and to secure there that touch upon the classics which they have not had in school.

In connection with this change in the substance of the requirements for admission to Columbia College, a change in the form of stating these requirements has been made, based upon the recommendations of a committee of the National Educational Association. Each entrance requirement is now given its value in points, and the total demand made upon the student is expressed in points rather than in subjects, and thus a much

greater degree of flexibility is given to the requirements as a whole. A point is estimated to represent five hours of study a week for a school year; and the weight of each requirement is given in points, according to the time that it ought to take, upon this basis, for a good school to prepare a student to meet the requirement. This change in the form of stating the requirements for admission to college has resulted in a similar change in the form of stating the requirements for graduation. Without affecting the substance of this statement, it has been made much more simple; while the flexibility of the course has been increased. At Columbia, no effort has been made to determine arbitrarily the relative educational value and importance of the subjects required for admission to college; but no change has been made as to the subjects that must be studied, either in school or college, before the degree of Bachelor of Arts can be obtained.

The first result at Columbia University of this change in the form of the statement of entrance requirements has been the organization of a University Committee on Entrance Examinations. This Committee has conducted this year, with great success, examinations upon all the subjects required for admission to Columbia College, to Barnard College, to Teachers College, and to the Schools of Applied Science. It happens that the requirements for admission are different for each of these Colleges and for the Schools of Applied Science; but the subjectmatter of every subject that can be offered is the same for all. The University Committee conducts examinations in the entire range of subjects that may be

offered for admission to any of these Colleges or to the Schools of Applied Science, and certifies the results to the Committee on Admissions of the Faculty concerned. The student naturally takes examinations only in the subjects that are called for by the regulations of the College or School which he wishes to enter. Thus, at a stroke and for the first time, uniformity of statement and of standard has been achieved for all of these Colleges and Schools, while a single examining body has taken the place of four such bodies.

This result is in line with a movement of much importance which was initiated by our Prof. Butler at the annual meeting of the Association of Colleges and Preparatory Schools of the Middle States and Maryland, held at Trenton, N. J., on the two days immediately following Thanksgiving Day, 1899. Prof. Butler there proposed that a movement should be begun to do for the group of colleges included in the Association what the University Committee on Entrance Examinations has since done for the different undergraduate colleges and schools of Columbia University. I am happy to report that this movement has made most encouraging progress. The Association at once endorsed the plan, and appointed a Committee of five secondary school teachers to coöperate in its development. Representatives of most of the colleges of the Association having an entering class of fifty in number, in cooperation with this Committee, have developed a detailed plan for the accomplishment of the desired result; and this plan has already met with the approval, so far as it is essential, of Princeton University, the University of

Pennsylvania, Columbia University, Rutgers College, Union University, Colgate College, New York University, Vassar College, Cornell University, Swarthmore College, Bryn Mawr College, and the Woman's College of Baltimore. The plan contemplates that examinations shall be held by a Committee, representing all the colleges concerned and also the secondary schools of the territory covered by the Association, in the entire range of subjects that may be offered for admission to any of these colleges. student naturally will take examinations only in the subjects required by the particular college he wishes to enter. The Committee will report the results of the examination, in each subject taken, to the college concerned; and the Committee on Admissions of that college is to determine whether the candidate shall be admitted or not, and whether with or without conditions. The one essential feature of the scheme, which might well have caused the failure of the plan, is the necessity for a common statement, acceptable to all the colleges concerned, of the subject-matter in each subject in which examinations are held. Happily, this difficulty has been successfully overcome by the Committee to whom the preparation of the plan was referred. There seems to be no reason, therefore, why the plan should not perfectly succeed, if it is properly supported by the secondary schools. If these schools, in sufficient number, will adopt as the basis of their school work the subject-matter in each subject as formulated in this plan, there is no reason whatever why common requirements and a common standard should not be brought about for all the colleges concerned. To the extent that the schools and

the colleges give their support to this movement, the better articulation of the secondary schools and of the colleges will be brought about. The importance and value of this reform, if successfully realized, can neither be overstated nor overestimated.

Certain changes have been made in the Statutes of the University relating to business administration, which give promise of promoting efficiency Changes in in several directions. The Committee on Education of the Trustees has been re-Administration constituted so as to make the President, ex-officio, a member of this Committee. On the other hand, the educational estimates, which have been prepared heretofore by the President alone, will hereafter be prepared by the Committee on Education. This change of practice can hardly fail to benefit the University by making the Trustees more familiar with the details of its educational work and also with its needs. The new practice will conform to that always pursued in connection with the Committees on Buildings and Grounds and on the Library.

During the year the existing office of Bursar has been subdivided into three, so as to provide: I. For a Bursar; 2. For a Registrar; 3. For a Chief of the Bureau of Purchases and Supplies. The Bursar becomes simply the representative of the Treasurer at the University; the Registrar, under the direction of the President, is to keep all records relating to the students; and the Chief of the Bureau of Purchases and Supplies, also under the direction of the President, is to make purchases and furnish supplies to the various departments. These offices, efficiently

manned, will provide an adequate system for the conduct of the business of the University at Morningside Heights and at the College of Physicians and Surgeons. Mr. George F. Fisher, the present capable and efficient Bursar of the University, will continue to hold that office; Dr. George B. Germann, a graduate of the College of the Class of 1895, has been appointed Registrar; and Mr. Thomas Little has been appointed Chief of the Bureau of Purchases and Supplies. Thus is consummated a development on the business side of the University's activity which corresponds to and has been necessitated by the great educational development of the University in the last ten years. The details have been carried out under the direction of the firm of Public Accountants. Messrs, Patterson, Teele & Dennis.

Important changes have also been made in the Statutes relating to the payment of fees. Heretofore, the fees of students have been payable before they could matriculate or attend lectures. As a consequence, no student would matriculate at the beginning of the year until all the details of his course had been satisfactorily adjusted. This system kept the work of the University in a state of confusion for many weeks. By the Statutes as modified, the required payment of fees is postponed until the last Saturday In the meanwhile, students are now reof October. quired to register promptly, and may attend lectures as soon as they register. The privilege of changing electives has been made to terminate on the day when the payment of fees becomes due. lieved that this new system will minimize the loss of time at the beginning of each academic year, and that complete rolls of classes can be made out on or about the first of November.

The growth of the academic community in the neighborhood of the University has been so rapid as to lead to the appointment, this year, of a Committee on Dormitories. No buildings especially intended for the use of students have yet been given to the University, nor have any been erected in its neighborhood. The time cannot be far distant, however, when this development will take place in one form or the other, and perhaps in both. In the meanwhile, all sorts of questions have arisen relating to this subject. The Committee on Dormitories has authority to define the attitude of the University, both generally and in detail, as to any branch of this question that may call for prompt action. Similar committees have been appointed by Barnard College and by Teachers College. The President of the University is Chairman of all three committees, so that joint action can be had in case of need.

A dormitory for women is about to be begun under the auspices of Teachers College. This dormitory will be on Amsterdam Avenue and will occupy the entire block between 120th and 121st Streets. Pending the construction of this building, it has been thought wise by the Trustees of the University to appoint an Adviser for Women Students; so that women graduate students who, under the recent agreement with Barnard College, may now become candidates for the degrees of Master of Arts and Doctor of Philosophy as students of the University, may have some one to counsel with, if so disposed, as to where they can secure suitable quarters and as

to such other matters as they may wish. This officer has no educational function; but she is appointed to be of service to the women students of the University in any way that she can. The result of this officer's work during the next academic year is likely to determine whether or not such an officer is permanently desirable in a University situated, as Columbia is, in a large city. Mrs. Edith R. Darrach has been appointed to this office. She will have rooms in West Hall and will keep regular office hours.

The work in English and Literature of recent years has been under the charge of three departments: the Department of English Language and English De- Literature, the Department of Literature, and the Department of Rhetoric and English Composition. This organization was determined by accident rather than by design. This year it has been deemed advantageous to substitute for these three departments the two departments of English and of Comparative Literature. The fields of these two departments touch at some points, and, to some extent, they overlap; but it is believed that better results can be achieved under the new than under the old organization. The Department of English deals with English literature especially, but not exclusively, on the philological and rhetorical sides. The Department of Comparative Literature, besides taking that larger view of literary subjects which is suggested by the name "comparative," deals also with English literature, but especially in the literary spirit.

The Baccalaureate sermon of the year was preached by the Rev. Charles Cuthbert Hall, D.D., President of the Union Theological Seminary. The services were held in the Gymnasium and were well attended by students and officers and friends of the University. It was again the subject of recalaureate gretful remark that the University should have no chapel of its own in which such services could be held. It is greatly to be hoped that a chapel may be given to us before long.

Upon the recommendation of the National Academy of Sciences, the Barnard Medal for Meritorious Service to Science was awarded at Com-Educational mencement, in accordance with the provision Incidents of President Barnard's will, to Prof. Röntgen, of the University of Würzburg, for the discovery of the X Rays. This is the second quinquennial award. The first award was made to Lord Rayleigh and his colleague, Prof. Ramsay, for their discovery of Argon.

By request of the Director of the Department of Education and Social Economy this University made an exhibit at the Paris Exposition of 1900 in education (Teachers College), in psychology, in law, and in library administration. It has been awarded two gold medals, one for its general exhibit, and one for its exhibit in education, prepared by Teachers College.

The Association of American Universities was formed at a conference held during the winter in Chicago. Upon the recommendation of the University Council, and by authority of the Trustees, Columbia University has become a member of this Association. The object of the Association is to discuss questions of common interest. It has no legislative functions. The formation of it is another evidence of the growing desire to articulate better the work of the universities and colleges and secondary schools all over

the country. In Continental Europe, this articulation is brought about by government. In America, it must come by the voluntary action and good sense of those concerned. The first step in such a process must always be the recognition of the need. When the need is universally recognized, the desired result easily Nothing is more characteristic of the last ten years in the history of American education than the constant trend towards such a correlation of the higher and the secondary education. No better evidence of this fact could be supplied than is offered by the success of the Committee already referred to, in preparing a statement of subject-matter for examinations, in ten or twenty different subjects, which has been accepted as satisfactory by many, if not all, of the colleges in the Middle States and Maryland. When this Committee approached its task, it found that, in almost every subject, the work had been substantially done for it, either by the National Educational Association, by the Modern Language Association, or by whatever Association it might be that was interested in each subject with which it had to deal. These general Associations, being national in scope, show that the tendency of which I have spoken is national in both origin and effect. It is only an accident of the situation that the evidence of the fact is furnished from the Middle States and Maryland.

It is interesting to record that an American School for Oriental Study and Research in Palestine is to be established in Jerusalem, after the pattern of the Schools already existing for classical study at Athens and at Rome. The Trustees have authorized the President to use the name of the University as one

of the founders of this School, provided the sum of \$500 can be obtained to meet the necessary subscription. A part of this sum has already been given and it ought not to be difficult to secure the remainder.

In the matter of numbers, the year has been one of unusual growth in every department of the University. The following tables give the summary of officers and of students by Schools ship of the for each of the last two years.

Member-Member-Members of the University

#### SUMMARY OF OFFICERS

	1898-99	1899-1900
Professors	70	73
Adjunct and Associate Professors	14	14
Clinical Professors and Lecturers	15	15
Demonstrators	3	3
Assistant Demonstrators	9	10
Instructors	54	57
Tutors	32	32
Assistants	5 I	5 r
Curators	3	3
Lecturers	25	21
Clinical Assistants	63	7 I
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Officers of Instruction	339	350
Officers of Administration	I 2	12
Emeritus Officers	12	13
Total	363	375

#### SUMMARY OF STUDENTS BY SCHOOLS

		-	8-99			1899-	1900	
	Holding a degree	Not holding a degree	Total	Percentage of degrees	Holding a	Not holding a degree	Total	Percentage of degrees
Law  Medicine  Applied Science  Political Science )	217 303 68	132 423 391	349 <b>72</b> 6 459	62 42 15	238 309 79	142 478 412	380 787 491	60 39 16
Philosophy Pure Science	213	58	271*	78	292	37	329*	88
Columbia College	801	1004	1805 403 2208	44	918	1069	1987 465† 2452	46½
BARNARD COLLEGE: Undergraduate students Graduate students			278		:	251 82	333	
TEACHERS COLLEGE: Candidates for Diploma Students	and S	Special	297				391	
Teachers College Extension Auditors	n Stu	dents	2783 1173 29				3176 751 31	
Grand total	• • • • •		3985				3958	

The growth in the number of officers is normal, and seems to call for no comment. It will be observed that, in the University corporation, the number of students has increased from 2208 to 2452; in Barnard College, from 278 to 333; and in Teachers College, from 297 to 391. It is a matter of gratification that the improvement in quality continues which has been noticed from year to year, as shown by the College membership and the number of graduate students. This is well brought out, for the University corporation, by the following table:

* Total number receiving instruction:	1898–99	1899-1900
Political Science	240	280
Philosophy	321	382
Pure Science	175	115
† Of this number, 8 have already receive	d a degree elsewher	re.

	Stud	lents	Perce	ntage
I	898-1899	1899–1900	1898–1899	1899-1900
College undergraduates.	403	457	18.27	18.64
Graduates	801	926	36.22	37.77
Non-graduates	1004	1069	45.51	43.59
	<del></del>		<del></del>	
	2208	2452	100	100

An examination of the second table shows that the number of students holding a degree was larger this year than the year before, in each School of the University. The total gain of the year in graduate students is 117, against a gain of 65, of students who hold no degree. These statements do not relate to the College.

The number of students in the College has increased from 403 to 465. Of this number, it is noticeable that, for the first time, certainly in recent years, eight students have already received a degree elsewhere. These students are now candidates for the degree of Bachelor of Arts from Columbia College. This is gratifying evidence that our degree of Bachelor of Arts shares in the high estimate in which our University degrees are held.

In Barnard College, both the undergraduate body and the body of graduate students have been larger than the year before. After this year, the graduate students will appear as students of the University, and the statistics of Barnard College will relate to undergraduate students only.

In Teachers College, the number of students who have taken their first degree and who are doing graduate work is 122. Two years ago, there were no students in Teachers College doing graduate work. It would be hard to express more forcibly than by this statement of fact the significance to the

cause of education of the arrangements that have made Teachers College an integral part of the University. It is clear that this College is now meeting a need, which, up to this time, has been adequately met nowhere in the United States. Happily, other institutions are now being developed in different parts of the country upon similar lines.

The academic year 1896-97 was the last year at the 49th Street site. The following table shows the geo-Geograph-graphical distribution of students for that ical Distribution of year, and for each of the three years at Students Morningside Heights:

	1896-97	1897-98	1898-99	1899-1900
New York City	1073	1210	1250	1330
New England States	III	131	125	166
Middle States States north of Ohio River and	499	5 <sup>2</sup> 5	529	587
east of Mississippi River	79	87	87	106
States south of Ohio River and east of Mississippi River	47	59	62	84
States west of Mississippi River and east of Rockies	64	64	83	93
States west of Rockies and on				
Pacific Coast	27	41	34	38
	1895	2117	2170	2404
Foreign countries		40	38	48
2 2 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				
	1921	2157	2208	2452

It is interesting to observe that this year one third of the growth has come from the city of New York, and two thirds of it from a distance. The percentage of students in the University registering from New York City, for the last year at the old site, was 56 %. It has remained substantially the same at the new site until this year. For the academic year 1899–1900, the percentage is reduced to 54 %. These figures, in every case, are only partially accurate, because many

students register from New York City who really come from a distance; for, in coming to New York to study, they come to New York intending to stay. This table further shows that in the last three years the growth of the University has exceeded 27%. Expressed in figures, the growth amounts to 531 students. This growth has come fairly evenly from all parts of the country; but it is a little the greatest, proportionately, from the States south of the Ohio River and east of the Mississippi River. It is almost as great from New England; from the States north of the Ohio and east of the Mississippi; from the States west of the Mississippi and east of the Rockies; and from foreign countries.

The report of the Librarian reveals in a satisfactory way the excellent organization of the Library which the year has sufficed to bring about; and also the good results which this organization, under the intelligent administration of Dr. Canfield, has produced. The Librarian's own report is confined to a discussion of the general questions of importance affecting the Library. Attached to it is a report from the Supervisor of each of the Divisions under which the work of the Library is now carried From these subsidiary reports one may obtain a very clear idea of the way in which the work of the Library is conducted. For the first time, also, there comes a report from the Committee having charge of the Avery Library, as established by the deed of gift. In a word, it is evident that the administrative machinery of the Library is now most effective. It is interesting, to those who have watched the process, to

observe how surely the growth and development of the University have resulted in the abandonment at every point, of amateurish methods of administration for those that are called for by the best business standards. It is not strange that this process has demanded time; but it is exceedingly gratifying to know that it is now substantially complete. Our administrative force may need to be enlarged in its personnel with the growth of the University; but its present organization, I think, will stand the test of time.

For particulars as to the detailed working of the Library, attention is asked to the report of the Librarian and the accompanying documents. It suffices here to call attention to the needs of the Library and to give the usual statistics. The Librarian says that he can well use another \$10,000 annually for the purchase of books of a general character; that, in addition to this, \$5000 a year for three years could be used to the greatest advantage for the purchase of books in history, political science, and sociology; another sum of the same amount could be equally well spent in philosophy and education. An immense advantage would accrue to the Library if we could have \$5000 a year for three years for the purpose of filling out and completing our sets of periodicals; while \$1000 a year for five years could be thoroughly well used in the care of unbound material, maps, and charts. One thousand dollars could be profitably expended, annually, in preparing and printing finding lists for departments, or special themes; and a like amount, if available for five ensuing years, would create a valuable and unique collection of reports and statements of State and municipal officers and of charitable and industrial organizations, and the like. In a word, there is scarcely a direction in which money can be given to the University where it will be so useful as in the development of the Library.

The usual table follows showing the additions to the Library for the last five years:

1895–96	20.584
1896-97	11.028
1897-98	16 277
1898–99	25,377
1899–1900	25,404
1099 1900	20,200

The break in the years 1896-98 reflects the interruption of accessions due to removal to the new site.

The following table shows the use of the Library as reflected by the loans of books to be read at home:

1889-90	19,400
1895-96	50.756
1896-97	67.075
1897-98	47.832
1898-99	77.26T
1899-1900	82,688

The falling off in the year 1897–98 reflects the closing of the Library for several months during its removal from 49th Street to its present building.

The Supervisor of the Reference Division of the Library reports that the number of evening readers has increased during the year about 10 %. He estimates that the total use of the Library, for reference and for loans, has increased during the year almost 100 %. This larger use reflects in part the increased membership of the University, and in part the greater facilities which have been placed at the command of readers.

The Cataloguing Division has added 70,082 cards

to the catalogue, a number more than 9000 in excess of the previous year.

The Division of Serial Publications reports that the Library is now subscribing for 1032 periodicals and serials. In addition, about 1500 are sent to the Library without cost. Of this large body of serials, about 2500 in number, only 1120 are what would be popularly called newspapers or magazines. The remainder are annuals, and publications of one kind and another that appear with a certain periodicity but with more or less infrequency.

Much progress has been made in ascertaining the condition of our duplicates. As a result of this examination, both the main Library and the departmental libraries have been strengthened.

An interesting feature of the work of the year has been the exchange of books between libraries. The Columbia Library has loaned 138 volumes to 29 different libraries; and it has borrowed 46 volumes from 7 libraries. This coöperation between libraries is a movement full of encouragement for the scholarship of the country.

The total outlay for the Library during the year has been \$57,485.82; of this sum, salaries absorbed \$28,677.77.

One of the most welcome presents of the year was the gift from Mr. W. B. Parsons, a Trustee of the University, of a series of valuable Chinese books, some of which were printed from two hundred to two hundred and fifty years before the printing of the Gutenberg Bible. This collection of Chinese classics is at once an interesting memorial of Mr. Parsons's trip to China for the purpose of surveying a railway

line from Hankow to Canton, and a pledge that this University will do its part in developing the better understanding between Occident and Orient which is so much to be desired.

Gifts of money during the year for the purchase of books amounted to \$10,200.

The Director reports that the work of the gymnasium has proceeded satisfactorily. Both in contests of agility and in comparisons of strength, The the students have acquitted themselves Gymnasium most creditably.

It is pleasant to report a further growth on the part of the College. Last year, its membership exceeded 400, for the first time amounting to The 403. This year, it numbered 465, distributed College in the several classes as follows:

Seniors	93
Juniors	86
Sophomores	I I 2
Freshmen	119
Special Students	55
	465
	403
University students taking one or more	
courses in the College	19

The following table, relating to the geographical distribution of the College students, is interesting:

1	1897-98	1898-99	1899-1900
Number of States represented	16	20	24
Foreign countries		I	3
York		128	144

These figures tend to show that the College is not only growing in size, but that it is attracting students from a larger area.

The number of students admitted by transfer from other colleges appears also to be on the increase. There were admitted in this way, to the

	1895	1896	1897	1898	1899
Freshman Class	3	3	7	5	3
Sophomore Class	7	3	5	7	6
Junior Class	4	3	3	8	13
Senior Class		2	4	I	9
Special Student		• •		1	
			_		
	20	II	19	22	31

The number of students examined for admission to the College, in June, 1900, was 202, as compared with 173 the year before. The increase in the number of those taking preliminary examinations was particularly gratifying, there being 90 this year as against 67 a year ago. These figures foreshadow a continuance of the growth of the College in the immediate future.

Reference has already been made to the slight but important change which has been effected in the entrance requirements for the College, and in the form of stating the requirements for graduation. I share the expectation of the Dean that these changes, within the next few years, will increase importantly the number of those attending the College.

The usual tables follow, showing, first, the number of students examined in each subject; and, second, the percentage passing in each subject:

English Reading and Composition Study and Composition Mathematics—Elementary	87	Percentage of total number of candidates	No. taking examinations	Percentage of total number of candidates
Reading and Composition Study and Composition Mathematics—Elementary	107	62		D 7 2 0
Mathematics—Elementary			98	68
Algebra to QuadraticsPlane GeometryQuadratics		65 58	154 119 114	74 57 54
Advanced Algebra		7·5 7·5	2 I 2 3	10
Plane Trigonometry  History—Elementary Greek History.  Roman History.  English History.  American History.  Advanced History.	22	13 17 13	17 24 35 33 0	8 11 16 15 0
Latin—Elementary Cicero Special Text. Vergil. Sight Major. Sight Minor Prose Composition. Advanced Latin.	72 58 38 81 45	43 42 34 22 47 26	} 116 100 } 139 113 0	55 48 67 54 0
Latin (Old Requirements)*  Cæsar Cicero Vergil. Prosody Grammar and Composition.	45 28 36	5.8 26 16 21 28		
Greek—Elementary Attic Prose and Greek Grammar. Homer. Composition Advanced Greek	22	34 13 13	91 52 68 0	43 25 32 0
Greek (Old Requirements)* Anabasis, I, II	32 38	8.1 19 22 22		
French—Elementary Translation from French Grammar and Translation into	71	41	97	46
French	71	41	95	45
Translation from French Grammar and Translation into French			7	3

<sup>\*</sup> Beginning June, 1900, no longer required; superseded by new requirements.

	June,	1899	June,	1900	
Total number of candidates	173		208		
German—Elementary	No. taking examinations	Percentage of total number of candidates	No. taking examinations	Percentage of total number of candidates	
Translation from German Grammar and Translation into	68	<b>3</b> 9	77	37	
German	69	40	75	36	
Advanced Translation from German Grammar and Translation into			0	0	
German			5	2	
Spanish Translation from Spanish Grammar and Translation into			5	2	
Spanish		1 1	0	0	
Botany	2	1.2	2	I	
Chemistry	16	9.2	25	12	
Physics—Elementary	13	7.5	22	10	
Physiography			0	0	
Zoölogy		1 1	I	0.	

	June, 1899			June, 1900		
	No. taking examinations	No. passing	Percentage passing	No. taking examinations	No. passing	Percentage passing
English Reading and Composition			<u></u> -		116	82
Study and Composition	87	82 65	77	142 98	73	74
Mathematics—Elementary	- 1	53	'	90	13	/ -
Algebra to Quadratics	113	92	81	154	102	66
Plane Geometry	100	86	86	119	88	74
Quadratics	Τ.		-6	114	70	61
Advanced Algebra	13	10	76	21		40
Solid Geometry	13	11	85	23	13	43  56
Plane Trigonometry				7	6	8.5
History—Elementary						
Greek History				17	13	76
Roman History English History	22	16	73	24 35	20 18	83
American History	30	28	93	33	26	78
Latin—Elementary						1
Cicero	75	65	87	} 116	111	95
Special Text	72	39	54	)	ł	
Vergil. Sight Major	58 38	42 30	72	100	89	89
Sight Minor	81	66	79 81	{ 139	120	86
Prose Composition	45	27	60	113	83	73
Advanced Latin				0	0	0

	June, 1899			June, 1900		00	
	No. taking examinations	No. passing	Percentage passing	:	No. taking examinations	No. passing	Percentage passing
Latin (Old Requirements)*  Cæsar  Cicero  Vergil  Prosody  Grammar and Composition	10 45 28 36 49	9 38 20 25 32	90 84 72 69 65				
Greek—Elementary Attic Prose and Greek Grammar. Homer Composition Advanced Greek.	59 22 22	42 19 14	71 86 64		91 52 68 0	62 46 37 0	68 88 54 0
Greek (Old Requirements)*           Anabasis, I, II	14 32 38 38	11 21 35 22	79 66 92 58				
French—Elementary Translation from French Grammar and Translation into French	7I 7I	57 48	80 68		97 95	76 46	78 48
Advanced Translation from French Grammar and Translation into French					7 6	2 I	28 16
German—Elementary Translation from German Grammar and Translation into German.	68 69	54 52	79 75		77 75	69 50	89 66
Advanced Translation from German Grammar and Translation into German.					5 5	4 4	80 80
Spanish Translation from SpanishGrammar and Translation into Spanish.							
Botany Theory Laboratory	2 2	2 I	100 50	}	2	2	100
Chemistry Theory Laboratory	16 16	15	94 88	}	25	21	84
Physics—Elementary Theory Laboratory Advanced	13	12 10	92 77	}	22	18	82
Physiography					0	0	0

<sup>\*</sup> Beginning June, 1900, no longer required; superseded by new requirements.

It is gratifying to observe that the Dean reports the satisfactory working of the new system of scholarships, which was substituted a year ago for the system of free tuition.

An important step has been taken in the interest of the students of the College by the appointment of Prof. Herbert Gardiner Lord as Professor of Philosophy. Prof. Lord's work will lie entirely with the College students, and his experience and training are believed to equip him particularly well for this duty. The elementary instruction in psychology and logic and ethics which, for a number of years, has been given to large classes, by lectures, will be given by Prof. Lord to small sections. It is reasonable to expect a noticeable increase in efficiency as a result of the adoption of the latter method; and efficiency is never more necessary than when foundations are being The advantages of this appointment will be shared by the students of Barnard College.

There follows the usual table showing the number of Columbia Bachelors of Arts who remain students in the University after graduation from the College:

1895-96	74
1896-97	80
1897-98	75
1898-99	63
1899-1900	71

Also the table showing by faculties the distribution of electives of the Senior Class:

	Studying under one Faculty	Studying under two Faculties	Studying under three Faculties
1891-92	. 3	20	15
1892-93	. 15	38	I 2
1893-94	. 31	45	7
1894-95	. 8	38	ΙΙ
1895-96	. 15	2 I	15
1896-97	. I 2	24	17
1897-98	. 5	26	18
1898-99	• 4	34	15
1899-1900	. 15	58	20

The great body of the students, year after year, study under two faculties. During the year under review, for the first time in several years, the tendency to concentration was almost as strong as the tendency to diffusion. The proportion in which the various faculties have been chosen during the last three years is indicated by the following table:

	1897–98 49 in class	1898–99 53 in class	1899–1900 93 in class
Law		5	18
Medicine		4	7
Applied Science	2	2	3
Political Science			
Philosophy Pure Science	90	99	148
Pure Science			

The Dean calls attention again in his report to the great importance of securing, as soon as possible, a new and adequate building for the College. I concur heartily in everything that he says upon this point. I hope the day is not far distant when this need can be met.

The usual statistics follow for the School The School of Law:

Men holding Columbia degrees Men holding other degrees	1896-97	1897–98	1898-99	1899-1900
	32	35	23	31
	180	193	194	205
Columbia College Seniors	212	228	217	236 18
Percentage of the whole School Total number in School	218	<sup>237</sup>	222	<sup>254</sup>
	60	63	63	62
	*357	*376	*349	*380

It is pleasant to record that this School has grown importantly, especially in its entering class; which numbered 167 as against 133 the year before. A very large percentage of the second-year class also returned to take the third year, 99 out of a class of 105. The falling off between the first and second year is always the largest; but this falling off, also, was less than usual, 112 returning to the School out of a class of 132. It would be hard to devise a better test of the attractiveness of the School to those who are prepared to do thorough work. The standard is high and the work severe; but it is pleasant to observe that the School commands the confidence of those who know what it is.

The College The following tables embody the usual of Physicians and statistics relating to the College of Physicians and Surgeons:

	1895–96	1896-97	1897–98	1898-99	1899-1900
Men holding Columbia degrees Men holding other	. 19	19	35	29	26
degrees	246	22 I	284	274	289
Columbia College	265	240	319	303	315
Seniors		3	3	4	7
	271	243	322	307	322

<sup>\*</sup> Does not include Seniors of Columbia College.

	895-96	1896-97	1897-98	1898-99	1899-1900		
Percentage of the whole School Total number in School		38 639	42 766	42 726	40 801		
IN ENTERING CLASS							

	Degrees signify- ing a liberal education	Degrees signify- ing a technical education	Percentage in class of liberal degrees
1895-96	68	3	28
1896-97	73	3	28
1897-98		4	39
1898-99	56	9	34
1899-1900	64	2	28

The entering class was larger by 20 than the year before; but the percentage of men in the class who had already received liberal degrees was not as great. This percentage, indeed, has returned to the point at which it stood in the first two classes that entered for the four-year curriculum.

In this year's class, 165 men were graduated at Commencement. Of these, 91 received hospital appointments and 5 received the appointment of alternate. Inasmuch as these appointments are earned by competitive examination, the showing, as the Dean remarks, is extremely creditable to the Class of 1900. The competitions were held by 36 hospitals, and in these competitions, the students of the College of Physicians and Surgeons were called upon to meet all comers.

The most important incident of the year affecting the College of Physicians and Surgeons was the reorganization of the work in Surgery in the Roosevelt Hospital. Owing to the retirement of Dr. McBurney as Surgeon to the Hospital, the Trustees of the Hospital effected a complete reorganization of that department. Drs. Weir and Bull were appointed Surgeons to the Hospital, and Drs. Brewer and Blake

were appointed Junior Surgeons. Drs. Bull and Weir are the occupants of the Surgical Chair in the College of Physicians and Surgeons, and Drs. Brewer and Blake are also members of that department. This reorganization by the Roosevelt Hospital of its surgical department has brought about a much closer relationship than has recently existed between the Surgical Chair in the College and the work in Surgery at the Hospital. It cannot be doubted that this closer relationship will be of advantage both to the Hospital and to the College. Situated as the two institutions are, directly opposite to each other on West 50th Street, it is certainly wise for them to work together. The College ought to lose no opportunity to strengthen the Hospital; and the Hospital ought to find its advantage, at all times, as it has in the reorganization of its Department of Surgery, in working closely and harmoniously with the College.

I cannot allow this occasion to pass without expressing my regret that the retirement of Dr. McBurney as Surgeon to the Roosevelt Hospital has brought to a close his active connection as a teacher with the surgical work of the College of Physicians and Surgeons. His eminence in his profession has lent distinction to the College; and as long as he himself held the Chair of Surgery, his connection with the surgical work at Roosevelt Hospital was a great advantage to the College. When, however, he retired from the Chair of Surgery and gave only clinical instruction to the students, the situation became immediately embarrassing; because the Professors of Surgery found themselves called upon to maintain clinics at a distant hospital, in competition with the clinic of Prof. Mc-

Burney directly across the street. Prof. McBurney's retirement from the Roosevelt Hospital, and the reorganization which has just been described, restore the natural relations between the Surgical Chair and the surgical work at the Hospital. It is very greatly to be hoped that such relations may be permanently continued. I am glad to make grateful acknowledgment, none the less, both to Dr. McBurney and to his associate, Dr. Alexander B. Johnson, for the clinical instruction in Surgery so long and acceptably given by them to the students of the College of Physicians and Surgeons.

These Schools have reached during the year the greatest numbers they have attained since their foundation. In the regular courses, there The Schools have been 437 students as against 413 the of Applied year before. Of students of all kinds there have been 491 as against 467 in 1898–99. The following table shows the attendance in the various courses by classes:

	1st Class	2d Class	3d Class	4th Class	Total
SCHOOL OF MINES:				0	
Mining Engineering	29	28	16	17	90
Metallurgy	2	0	0	o	2
SCHOOL OF CHEMISTRY	14	5	II	4	34
SCHOOL OF ENGINEERING:		·			٠.
Civil Engineering	2 [	16	24	7	68
Electrical Engineering	28	30	35	23	116
Mechanical Engineering.	27	19	21	ŏ	67
SCHOOL OF ARCHITECTURE	14	18	19	9	60
-	135	117	127	60	437
Candidates for the degre		laster of	Arts		3
Candidate for the degre					I
Special students					50
Making	a gran	d total of			401

The comparison by courses, with the preceding year, is given in the following table:

	1898-99	1899-1900
School of Mines:		• • • • • • • • • • • • • • • • • • • •
Mining Engineering	67	90
Metallurgy	I	2
School of Chemistry	34	34
SCHOOL OF ENGINEERING:		
Civil Engineering	61	68
Electrical Engineering	135	116
Mechanical Engineering	<b>3</b> 8	67
SCHOOL OF ARCHITECTURE	77	60
		<del></del>
	413	437

The increase in the number of students taking the course in Mining Engineering is notable. This probably reflects, in part, the great increase in mining activity throughout the country. The course in Mechanical Engineering has now completed its third year. In another year it will be fully established.

The number of graduates of other institutions in attendance upon the Schools of Applied Science has been 79, as against 68 the year before. For further statistics and details, reference is asked to the report of the Dean.

Much progress has been made by this Faculty, as well as by the Faculty of the College, in simplifying the statement of its requirements for admission. Latin may now be offered for admission in lieu of French. Spanish also may be offered instead of French. The increasing demand for mining engineers who are acquainted with Spanish is leading the Faculty to encourage the study of that language in every way in its power.

At the beginning of the year Professor Munroe

was constrained, by the condition of his health, to offer his resignation as Dean of the Faculty. Professor Hutton was appointed Dean for the remainder of the unexpired term, and he has since been re-elected Dean of the Faculty for the full term of five years, beginning July 1, 1900. Professor Munroe's short term of service as Dean was marked by the utmost devotion to the duties of the office, and his painstaking examination of every subject which called for his attention resulted in several reports of permanent value. His enforced retirement was universally regretted by the members of the Faculty. I am happy to report that he has been able to discharge the duties of his professorship without disadvantage to his health.

I regret to be obliged to record the resignation, on account of ill-health, of Prof. Pierre de Peyster Ricketts, Professor of Analytical Chemistry and Assaying, after twenty-nine years of continuous service. In accepting the resignation, the Trustees instructed the President to make to Professor Ricketts a suitable expression of their regard and esteem.

The Department of Civil Engineering reports constant improvement in the details of the Civil Engineering course. In particular, the cement-testing laboratory and the laboratory for testing road-making materials have been greatly strengthened, and the work in them has been much improved; but perhaps the greatest improvement has been effected in the direction of railroad engineering. The equipment of the laboratory for the testing of road-making materials is the gift of a few friends of the University who are members of the League of American Wheelmen.

The Departments of Mining and Metallurgy, by a

joint effort, have obtained from persons interested in mining quite a fund for the equipment and maintenance of their departments. The contributors during the year under review were Messrs. E. E. Olcott, Lewisohn Brothers, Anton Eilers, American Metal Company, Ltd., M. Guggenheimer's Sons, Phelps, Dodge & Company. This fund, at the moment, amounts to \$15,118.92; and it is hoped that it may be still further increased. The needs of the University at the present time are so great that assistance of this kind is most valuable.

The Faculty has been authorized, during the year, to establish in the course of Mechanical Engineering, alternatives in marine engineering, naval architecture, and locomotive engineering. The last of these alternatives can be put into operation at once. The first two will be developed as rapidly as circumstances will permit.

It is pleasant to make record here of the election of Prof. Charles F. Chandler, Professor of Chemistry and for many years the Dean of the School of Mines, as President of the Society of Chemical Industry, whose headquarters are at London and whose membership of 3300 is found in all parts of the world. Dr. Chandler presided at the recent annual meeting of the Society in London; and, while in England, received the degree of Doctor of Science from Oxford University.

The friends of Hamilton Young Castner have asked for and received permission to place a tablet in his memory in one of the rooms of the Chemical Department. Mr. Castner entered the School of Mines in 1875, and was one of its most distinguished students.

His chemical inventions were numerous and valuable. The most important was his process for electrolizing a solution of common salt, for the manufacture of caustic soda and chlorine. This process is now in use in this country, in England, and on the Continent.

The usual table follows:

	1896–97	1897–98	1898-99	1899-1900
Men holding Columbia degrees	11	13	13	7
Men holding other degrees	. 42	40	59	72
	53	53	72	79
Columbia College Seniors	11	2	2	3
	64	55	74	82
Percentage of the Schools	. 16	I 2	16	16
Total number in the Schools	· 39 <b>9</b>	429	459	491

Then follow also the usual tables relating to entrance examinations:

Number of candidates		1899 04	June, 1900 222	
	No. taking examinations	Percentage of total No. of candidates	No. taking examinations	Percentage of total No. of candidates
English				
Reading and Composition	127	62	154	69
Study and Composition	84	41	119	54
Mathematics—Elementary				
Algebra to Quadratics	140	69	153	69
Plane Geometry	135	66	146	65
Quadratics)			127	57
Advanced	85	42	1	
Algebra)			117	53
Solid Geometry	87	43	122	66
Plane Trigonometry	85	42	117	53
History				
Greek History			0	0
Roman History			0	0
English History			0	0
American History	130	64	144	65

Number of candidates		e, 189 204	99	June, 1900 222				
	No. taking examinations		Percentage of total No. of candidates	No. taking examinations		Percentage of total No. of candidates		
Latin Cicero and Latin Grammar Vergil Simple Latin at Sight Composition	5		2.5	5 1 5 2		2.2 0.4 2.2 0.9		
French Translation from French Grammar and Translation into	99		49	126		57		
FrenchGerman	105		51	125		56		
Translation from German Grammar and Translation into	104		51	126		57		
German	108		53	126		57		
Spanish Translation from Spanish Grammar and Translation into Spanish				5 5		2.2		
Chemistry Theory Experiments	107 96		52 47	} 118		53		
Physics Theory Experiments	99 82		49 40	} 133		60		
Drawing FreehandArchitectural	100		49 6.4	} 115		52		
	Jui	June, 1899			June, 1900			
	No. taking examinations	No. passing	Percentage	No. taking examinations	No. passing	Percentage		
English Reading and Composition Study and Composition	127 84	82 64	65 76	154	91 76	59 64		
Mathematics—Elementary Algebra to Quadratics Plane Geometry Ouadratics)	140 135	105 98	75 73	153 146 (127	113 115 99	74 79 78		
Advanced	85	69	81	117	59	50		

	Jur	ie, 180	99	Ju	000	
	No. taking examinations	No. passing	Percentage	No. taking examinations	No. passing	Percentage
Mathematics—Elementary Solid Geometry Plane Trigonometry	87 85	57 47	66 55	122	84 63	69 54
History Greek History Roman History English History American History	130	83	64	0 0 0 144	0 0 0 122	o o 85
Cicero and Latin Grammar Vergil	5	2	40	\begin{cases} 5 & 1 & 5 & 2 & 2 & 2 & 2 & \end{cases}	5 1 5 2	100 100 100
French Translation from French Grammar and Translation into	99	65	66	126	102	81
French	105	28	27	125	54	43
Translation from German	104	62	60	126	110	87
Grammar and Translation into	108	60	56	126	87	69
Spanish Translation from Spanish				5	. 4	80
Grammar and Translation into				5	4	80
Chemistry Theory Experiments	107 96	103 92	88 96	} 118	<b>7</b> 8	66
Physics Theory Experiments	99 82	8 <sub>7</sub>	88 88	} 133	99	74
Drawing Freehand Architectural	100	68 8	68 62	} 115	75	65

The work of this Faculty has proceeded smoothly. The year has brought many evidences of its growth in influence. Ninety per cent. of the School, this year, has consisted of students who have taken their first degree and of Seniors in the College. The usual table follows:

	1896-97	1897-98	1898-99	1899-1900
Men holding Columbia degrees	31	40	40	45
Men holding other degrees	. 163	180	128	152
	194	220	168	197
Columbia College Seniors	34	33	37	53
	228	253	205	250
Percentage of the whole School	l 62	82	85	90
Total number in the School	. 366	310	240	281

It should not be forgotten, in reading the foregoing statistics, that they relate only to students of the grade of college seniors and to graduate students. The work of the Faculty of Political Science, as such, begins with the senior year, and no part of the work of the Departments related to students below that grade is considered in its report. The Departments of History and of Political Economy in particular, included in this Faculty, reach many more students than these figures indicate.

The Department of History, for example, gave instruction during the year under review to 448 students in all, of whom 50 were graduate students and 398 undergraduates. These figures represent a gain by the Department of 140 students for the year, or of about 40% as compared with the previous year. The Department also reports that more gratifying even than this increase of members is the observable change of attitude in all classes, "consisting in the good will to work independently and critically, with less regard to the supervision and impulse of instructors." This result is due, it thinks, "to the fact that while most of the courses devote but two hours weekly to actual class-room lecturing or teaching,

they all exact a carefully prepared course of outside reading."

The Department of Economics, also, reports a very large enrollment of students of all classes. The total enrollment in the University as a whole in the courses of economics, is 362. The graduate work of this Department is much more largely attended than that of any other similar department in the country. "Among the recent graduates in economics of the School of Political Science, no less than 25 are now giving instruction in this subject at other institutions, such as Yale, Cornell, Amherst, Bryn Mawr, Smith, Syracuse, the Universities of Illinois, Indiana, and Colorado, and the Massachusetts Institute Technology. A number of graduates have become editors of important daily or weekly papers in New York, Buffalo, Omaha, and other cities; and a large number occupy administrative positions in the service of the National and State Governments." This last observation suggests the remark that the tendency to employ graduates of this School in the public service has noticeably increased during the last year or two. This is a great encouragement to the Faculty; for it has been one of the objects sought by the School ever since its foundation in 1880.

This purpose of the School, to fit men for the public service, is reflected in two new courses that will be offered for the first time in 1900–1901. These are a course in Public Law by Prof. Burgess on "The Governmental Organization of the Territories and other Dependencies of the United States"; and a course by Prof. Munroe Smith, entitled "Institutes of Spanish Law."

The School The number of students studying under the of Philoso- Faculty of Philosophy has increased during the year by 61, or 19 %. The usual statistics follow:

	1896-97	1897–98	1898–99	1899-1900
Students holding Columbia degrees	38	51	53	49
grees	99	121	144	164
Columbia College Seniors	137 53	172 38	197	69
Percentage of the whole	190	210	239	282
School	72 263	82 255	74 321	74 382

The same observation applies to these figures as was made in regard to the statistics of the School of Political Science. All of the Departments in this Faculty teach many more students than are recorded here.

The Dean's report calls attention to the fact that the School of Philosophy, with the year under review, closes its tenth year. Interesting statistics covering this entire period are included in the report of the Dean. In that interval, its total enrollment has grown from 92 to 382. The number of students holding degrees, in attendance upon its courses, has increased from 52 to 220. It attracts to its courses at the present time about 75% of the seniors of the College.

The year has been marked by no incidents of special interest. The coöperation with Teachers College has proceeded smoothly and with constantly growing efficiency. It is important to call attention to

the strengthening of this Faculty which has come about by the appointment of Prof. Trent, at the instance of Barnard College; and by the appointment of Prof. Dutton and Prof. Lodge by Teachers College. All three of these gentlemen offer work which may be availed of by students of the Faculty of Philosophy. They very greatly strengthen the teaching staff in the departments with which they are respectively associated.

It is, perhaps, worth while to point out the very considerable increase in the number of graduate students who have been studying Greek this year. There have been 31 such students this year, as against 21 last year. The number of students of all grades who have taken courses in Greek, during the present year, is 146, as against 123 a year ago. It is to be borne in mind that those who study Greek, under present conditions, carry the subject much farther and become much better Greek scholars than when Greek was a required subject.

I am glad to report that the promotion of Prof. Egbert from Adjunct Professor of Latin, to the rank of Professor of Roman Archæology and Epigraphy, was almost immediately followed by his selection to be one of those to have charge of the American School for Classical Studies at Rome during the academic year 1901–1902.

Well-earned promotion to the position of Adjunct Professor of Latin has also been granted to Nelson Glenn McCrea, Ph.D., who has occupied the position of Instructor in the Department since 1895.

Attention should be called here to the very great strengthening of the Department of Psychology and Anthropology resulting from the endowment of the chair of Psychology by Mr. John D. Rockefeller. It is Mr. Rockefeller's wish that the income from this fund should be used to broaden and strengthen the work of the Department. The beneficial effect of this gift already appears, not only in making it possible for the Department to offer additional courses next year; but also in providing for the fitting up of additional space for the use of the Department. No department in the University is more public-spirited or more meritorious than this one; and it is a pleasure to know that its work can be developed so systematically.

The School of Pure Science, despite a small falling

The School off in numbers, has shared with the other

Schools of the University in the general prosperity of the year.

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Comparing the regular students of advanced character in the School of Pure Science, year by year since its foundation, the following is the result:

1892-93	16
1893-94	29
1894-95	
1895-96	
1896–97 1897–98	
1898-99	
1899-1900	00

It is gratifying to report that during the year several distinguished honors have come to Prof. Osborn, the DaCosta Professor of Zoölogy, and formerly Dean of the Faculty of Pure Science. He has been elected a member of the National Academy of Sciences and also of the Geological Society of London; and he has been appointed Vertebrate Palæontologist of the U. S. Geological Survey, and also of the Geological Survey of Canada.

Prof. Franz Boas, Professor of Anthropology, has likewise been elected a member of the National Academy of Sciences. As the membership of the Academy is limited to one hundred, it is a great compliment to the University that two of its professors should have been chosen in the same year.

It seems fitting that record should be made in this place of the death of Miss Catherine W. Bruce, who has so often befriended the Department of Astronomy. Miss Bruce was a wise and liberal patron of that science, and the departments of astronomy of several of our universities will sadly miss her generous hand.

Several of the Departments in the Faculty of Pure Science have been much strengthened, in point of equipment, by gifts received, largely from an anonymous friend. Mr. Charles H. Senff gave important help to the Departments of Geology and Zoölogy, and from the anonymous gift to which reference has been made the Department of Mechanics also was strengthened in such a way as to permit important researches to be carried on that have been waiting from year to year the acquirement of the necessary apparatus.

Reference has already been made to the gifts of

the late Prof. Egleston to the Department of Mineralogy, and to the fact that the Museum of this Department has been named by the Trustees, in his honor, "The Egleston Mineralogical Museum." Prof. Egleston, during his whole term of active service, held the Chair of Mineralogy and Metallurgy, but his heart was preëminently in his collection of minerals. His thought, for many years, was to leave this collection, or a part of it, to the École des Mines in Paris; but, at the last, he substituted a gift of money to that school for the gift of his collection, and merged his own collection in the departmental collection of the Department of Mineralogy. I am happy to be able to report that Prof. Egleston's brother, Mr. George Washington Egleston, proposes to place a tablet in the Museum in memory of Prof. Egleston.

The agreement entered into between the University and the New York Botanical Garden went into effect, during the year under review, by the transfer to the Garden, under the terms of this agreement, of the Herbarium of the University and of its Botanical Library. The facilities thus created for advanced work in botany, by the coöperation of the University and the Garden, are unsurpassed in the country, and our own students have not been slow to profit by them.

In a somewhat similar way, the students of zoölogy are benefited by the creation of the Zoölogical Garden. In connection with the American Museum of Natural History, the Zoölogical Garden affords to the students of zoölogy precisely the same double privilege of museum and field work which our students of botany enjoy at the New York Botanical Garden. These opportunities illustrate one of the advantages

which the University itself enjoys for work of this character by reason of its location in the city of New York.

An interesting event of the year, in which the Faculty of Pure Science was much interested, was the meeting at the University, in the month of June, of the American Association for the Advancement of Science. As many as fifteen affiliated societies held their meetings here at the same time. These societies were all well accommodated; and it is believed that all who attended the meetings received a good impression of the facilities existing at Columbia University for scientific instruction.

Inasmuch as Barnard College, by virtue of the recent agreement, has become an independent college in the University system, it gives me pleasure to Barnard report at this time the educational organization with which it has entered upon its new career. Its Faculty consists of the following members. Besides these members of the Faculty, it has many other officers of instruction whose names appear in its own catalogue.

SETH LOW, LL.D., President
JAMES HARVEY ROBINSON, Ph.D., Acting Dean

THOMAS R. PRICE, M.A., LL.D., Professor of English Language and Literature

EDWIN R. A. SELIGMAN, Ph.D., Professor of Political Economy and Finance

HERBERT L. OSGOOD, Ph.D., Professor of History

WILLIAM HALLOCK, Ph.D., Adjunct Professor of Physics

GEORGE RICE CARPENTER, A.B., Professor of Rhetoric and English Composition

FRANKLIN HENRY GIDDINGS, Ph.D., Professor of Sociology

JOHN B. CLARK, Ph.D., Professor of Political Economy
JAMES RIGNALL WHEELER, Ph.D., Professor of Greek
FRANK N. COLE, Ph.D., Professor of Mathematics
JAMES HARVEY ROBINSON, Ph.D., Professor of History
CALVIN THOMAS, A.M., Gebhard Professor of the Germanic
Languages and Literatures

CARLO LEONARDO SPERANZA, A.M., B. ès L., Adjunct Professor of the Romance Languages and Literatures

WILLIAM P. TRENT, M.A., LL.D., Professor of English Literature MORTIMER LAMSON EARLE, Ph.D., Professor of Classical Philology NELSON GLENN McCrea, Ph.D., Adjunct Professor of Latin HERBERT G. LORD, M.A., Professor of Philosophy

It is a matter of regret that Mrs. Emily James Putnam, recently Dean of Barnard College, should have been obliged to retire from the position of Dean just as she had brought the development of the College to this happy culmination. Mrs. Putnam, then Miss Emily James Smith, was elected Dean of Barnard College in 1894. During her administration as Dean, the College steadily increased in numbers and in reputation; and it is in no small degree due to her efficiency and tact that the agreement with the University was made possible, which has given to Barnard College the same standing in the University system as Columbia College. Upon Mrs. Putnam's retirement, Prof. James H. Robinson, of the Department of History, was appointed Acting Dean for the academic year under review; and he has been re-appointed Acting Dean for 1900–1901. It is the purpose of the Trustees of Barnard College to appoint a permanent Dean as soon as practicable.

One of the important results immediately following the complete incorporation of Barnard College into the University system has been the appointment, at its instance, of Prof. William P. Trent as Professor of English, who will have charge of the work in English language and literature in Barnard College. Prof. Trent is a graduate of the University of Virginia of the Class of 1884. At the time of his recent appointment, he was Professor of English and History at the University of the South and Dean of the academic department there. Prof. Trent will give three undergraduate courses in English literature at Barnard College; and in the University he will give two important graduate courses. In return for these graduate courses, Prof. Price, Prof. Matthews, and Prof. Carpenter will give certain courses in Barnard College.

The agreement with Barnard College was promptly followed by the modification, upon parallel lines, of our existing agreement with Teachers Col- Teachers lege. Hereafter the diplomas of Teachers College will be conferred at the Commencement of the University, and separate commencements by that institution will no longer be held. The status of Teachers College in the University system thus becomes identical with that of our other professional Schools. Teachers College is conspicuous among them all, however, for the amount of research work and investigation that is carried on in it. This work, though done in Teachers College, is under the direction of the Faculty of Philosophy, as the similar work in anatomy and physiology at the College of Physicians and Surgeons, for example, is under the direction of the Faculty of Pure Science.

Teachers College, during the year, has made two important appointments which call for notice in this

place. Mr. Samuel T. Dutton has been appointed Professor of School Administration and Superintendent of the Teachers College Schools. Prof. Dutton's equipment for this position is unusual. He is a graduate of Yale College of the Class of 1873. Since his graduation, he has been Principal of the High School in South Norwalk, Conn., and Principal of the Eaton Grammar School in New Haven. From 1882 to 1890 he was Superintendent of the Public Schools of New Haven; and from 1890 until the present time he has been Superintendent of the Public Schools of Brookline, Mass. Prof. Dutton's acceptance of the appointment at Teachers College cannot fail to strengthen the College greatly.

Teachers College has also made a most important contribution to the group of classical teachers in the University, through the appointment of Prof. Gonzales Lodge as Professor of Latin and Greek. Prof. Lodge is a graduate of Johns Hopkins University; and at the time of his appointment he was Professor of Latin at Bryn Mawr College. He holds a high place among the classical scholars of the country.

The report of the Director of the Summer Session hereto attached gives an interesting and full account Summer of the history and progress of the move-Session ment for the establishment of such a Session at Columbia, as well as a full record of the work done. The Director's report will well repay perusal, and reference is asked to it for all detailed information in regard to the Summer Session of 1900.

Courses were offered as follows:

Botany	3	courses
Education	5	44
English	5	
Geography	2	"
History	I	"
Manual Training	2	"
Mathematics	3	"
Philosophy	I	"
Physical Training	2	"
Physics	2	"
Psychology	2	"

The number of students in attendance was 417. A uniform fee of \$25 was charged, and each student was allowed to take not more than three courses; except that, in a very few instances, students were permitted to pursue four courses.

Students	taking	I	course											15
46			courses											
"	"	3	"											246
66	"	4	"											10
		•											-	

417

The following tables present interesting views of the character of the student body in attendance upon the Summer Session. They came from twenty-six States and Territories, and two came from Canada.

STUDENTS CLASSIFIED ACCORDING TO PREVIOUS PREPARATION

	Graduates of		Partial Courses in		Total	
Colleges	101	24.22%	37	8.88%	138	33.10%
for Teachers	143	34.30%	31	7.43%	174	41.73%
Other secondary or higher institutions	64	15.34%	10	2.40%	74	17.74%
N	308	73.86%	78	18.71 %	386	92.57%
No secondary or higher training	_	_	_	_	31	7.43%
					417	100 %

## STUDENTS CLASSIFIED ACCORDING TO TEACHING POSITIONS

Elementary Schools	2 I 2		50.84 %	
Secondary Schools	69		16.55	
Higher educational institutions	4		0.96	
Normal Schools	20		4.80	
Superintendents	8		1.94	
Special Teachers	I 2		2.88	
Teachers in Private Schools	II		2.61	
-		336		80.58%
Not engaged in teaching		8 r		19.42
Total		417		100 %

It is a pleasure to report that the income of the Summer Session has exceeded the outlay by almost \$2400. I concur in the recommendation of the Director that this fund be kept as a sort of guarantee fund for the Summer Sessions of following years.

The Trustees will recall that the Summer Session of 1900 has been in its nature experimental. It has been conducted under the joint authority of the Trustees of the University and of the Trustees of Teachers College. The results, it seems to me, fully justify the recommendation of the Director that authority be given for a permanent Summer Session of the University. Detailed recommendations to this end will be submitted later. The arrangements for the Session just closed have worked with remarkable smoothness, and much credit is due not only to the Director but to all who have cooperated with him in bringing about this result. The following table, which indicates the percentage of attention given to each subject offered in the Summer Session, shows how essential a factor in its success the Teachers College has been; or, rather, it shows, even more emphatically, how completely Teachers College belongs in the University system. Neither the University itself, nor Teachers College alone, could have conducted the Summer Session which has been so successful. The combination of facilities which the union of the two affords permits the offer by the University as a whole of a tender which appeals to a very large clientage.

Botany	28	2.58 per cent.
Education	458	42.2 I
English	237	21.84
Geography	59	5.43
History	15	1.39
Manual Training	2 I	1.94
Mathematics	73	6.74
Philosophy	24	2,2 I
Physical Training	42	3.87
Physics	40	3.68
Psychology	88	8.11
	1085	100.00 per cent.

Table showing attendance of students upon the University as a whole and without regard to Schools.

Miscellaneous Statistics

College Graduates Non-Graduates Total Undergraduates 1890-91..... 1891-92..... 1892-93..... 1893-94..... 27 I 1894-95..... 1895-96..... 1896-97..... 1897-98..... 1898-99..... 1899-1900..... 

## DEGREES CONFERRED IN 1899-1900

Bachelor of Arts	8 r	
" " in Barnard College	38	
Bachelor of Laws	87	
Doctor of Medicine	172	
Engineer of Mines	II	
Civil Engineer	5	
Electrical Engineer	2 I	
Bachelor of Science	19	
Master of Arts	108	
Doctor of Philosophy	2 I	
Master of Arts (Honorary)	3	
Doctor of Laws (Honorary)	6	
	57 <sup>2</sup>	
DEGREES HELD BY STUDENTS		
Bachelor of Arts	603	
Literature	16	
" Philosophy	63	
" Sacred Theology	2	
" Science	155	
Certificate of U. S. Military Academy	1	
" U. S. Naval Academy	I	
Doctor of Philosophy	6	
Master of Arts	120	
" " Laws	2	
" " Science	11	
" Literature	2	
Testimonium Maturitatis	13	
Higher Diploma (T. C.)	2	
Degrees signifying a liberal or general education		997
		,,,
Bachelor of Agriculture	1	
" " Divinity	7	
" " Laws	18	
" "Pedagogy	2	
" Engineering	2	

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Civil Engineer		6
Doctor of Laws		2
Doctor of Medicine		34
Doctor in Pharmacy		I
Electrical Engineer		2
Graduate in Pharmacy		17
Master of Pharmacy		I
Mechanical Engineer		3
Mining Engineer		I
Veterinary Surgeon	• • • • • • • •	2
Degrees signifying a technical education.	• • • • • • • •	99
Degrees		1096
Students holding more than one degree		170
8		
Total number of students holding degree	s	926
NUMBER OF INSTITUTIONS REPRESENTE STUDENTS	ED BY G	RADUATE
AMERICAN INSTITUTIONS	FOREIGN IN	STITUTIONS
1895-96 136	2	3
1896–97 145	1.	4
1897-98 151	1	8
1898-99 139	I	5
1899–1900 191	I	3
INSTITUTIONS REPRESENTED BY FIVE GRA	DUATES	OR MORE
	1898-99	1899–1900
Alfred University, N. Y	6	2
Amherst College, Mass	22	29
Brown University, R. I	13	17
Colgate University, N. Y	6	5
College of the City of New York	104	124
College of Pharmacy, N. Y	14	16
Columbia University, N. Y	129	138
Cornell University, N. Y	13	14
Harvard University, Mass	71	82
Hobart College, N. Y	8 6	7
Indiana University		5

Johns Hopkins University, Md	7	8
Lafayette College, Pa	5	10
Leland Stanford Junior University, Cal	2 I	20
Manhattan College, N. Y	7	3
New York University	22	28
Oberlin College, O	5	5
Ohio State University	1	7
Princeton University, N. J	<b>4</b> I	27
Rutgers College, N. J	9	8
St. Francis Xavier College, N. Y	26	23
State University of Iowa	5	4
Syracuse University, N. Y	4	9
Trinity College, Conn	14	9
Union College, N. Y	2	8
University of California	6	I 2
University of Georgia	2	6
University of Michigan	9	9
University of Minnesota	6	6
University of Nebraska	5	8
University of Rochester, N. Y	3	9
University of Vermont	4	5
University of Wisconsin	6	5
Wabash College, Ind	6	3
Wesleyan University, Conn	12	14
Williams College, Mass	27	39
Yale University, Conn	82	95

## The gifts of the year may be summarized as follows:

## For current uses:

For	Salaries	\$21,600	00*		
46	Lectures	650	00		
"	Fellowships	3,025	00		
"	Scholarships	200	00		
"	Prizes	350	00		
	Purchase of Books		00		
"	Sundries	5,433	92		
				46	

\$41,458 92

<sup>\*</sup> From Barnard College, \$13,900.

For equipment:				
Department of Geology	\$ 1,200	00		
" "Mechanical Engi-	T /			
neering	2,102	45		
" " Mining	1,050	00		
" Zoölogy	5,000	00		
Special Equipment Fund, 1900	10,000			
Special Fund, Departments of Min-				
ing and Metallurgy	15,118	92		
			\$34,471	37
Guarantee Fund for 1898–99			27,500	
			<del></del>	
			\$103,430	29
ENDOWMENTS AND BE	EQUESTS			
For the further endowment of the Avery				
Achitectural Library, from Mr. and				
Mrs. S. P. Avery	\$ 5,000	00		
For the endowment of a Chair in Psy-	φ 5,000	00		
chology, from John D. Rockefeller	100,000			
For the Carl Schurz Library Fund		00		
For the Carl Schurz Fellowship Fund	10,000	00		
For the Alexander Moncrief Proudfit				
Fellowship	12,400	00		
For the Maria McLean Proudfit Fel-	12,400	00		
lowship	12,400	00		
For a new building, to be dedicated to				
the religious and spiritual activities				
of the student body	100,000	00		
For the enlargement of University Hall	,			
—Collected and pledged by the				
alumni but not paid in	100,000	00		
By bequest from Dorman B. Eaton,				
subject to the life interest of his				
widow, for the endowment of a pro-				
fessorship on Municipal Adminstra-				
tion	100,000	00		
	100,000	00		
By bequest from John J. Jenkins, of the				
Class of 1833	500	00		
From E. J. Nathan, School of Law,				
Class of 1881, added to the Law				
Book Trust Fund	250	00		
			\$450,550	00

Some of these gifts call for special notice. Mr. and Mrs. S. P. Avery have added the sum of \$5,000 to the endowment fund of the Avery Architectural Library. This fund now stands at \$30,000. The report of the Committee on the Avery Architectural Library, hereto attached, shows how the income of this fund is used and reveals the further fact that Mr. Avery is constantly adding to the Library by direct gift.

The anonymous friend who has helped us so often has helped us again with a gift of \$10,000 for the purchase of books. In addition, he gave an equal amount for the purchase of laboratory equipment, which has been divided between the Mining, the Metallurgical, and the Electrical Departments, the Department of Psychology and Anthropology, and the Departments of Mechanical Engineering, Mechanics, and Zoölogy. Special gifts were also received from Mr. Senff for the Departments of Geology and Zoölogy. The Special Fund for the Departments of Mining and Metallurgy has been commented upon elsewhere; as has, also, the endowment of the Chair in Psychology.

The Carl Schurz Fund, referred to in my last report, has been received during the year and has been divided, as intended by its donors, into two funds of \$10,000 each; the income of one to be used for the maintenance of the Carl Schurz Fellowship in German, and the income of the other for the increase of the Library in everything relating to the German language and literature. The Proudfit Fellowships were spoken of last year.

I am glad to report the payment of fees, with inter-

est, to the amount of \$839, by Alexander M. Welch, a graduate in Architecture of the Class of 1890, in recognition of free tuition granted to him for two years of his course. It is always gratifying when men who have been thus aided, in the days of their prosperity take pleasure in paying to the University what it has gladly given.

By the kindness of friends, this University has been enabled to cooperate in the establishment, and support for five years, of "The Transactions of the American Mathematical Society," a new periodical to be published by the Society whose name it bears. Prof. Thomas S. Fiske of our Department of Mathematics is one of the three editors. The American Mathematical Society grew out of a club which was started by our Department of Mathematics in 1888.

Besides gifts of money, it is pleasant to record that the widow and children of Robert Goelet, a graduate of the College of the Class of 1860, and of the School of Law of the Class of 1862, have offered to erect, upon the platform in front of the Library, an ideal statue of Alma Mater as a memorial of Mr. Goelet.

This statue is to be executed by Daniel C. French, after designs to be approved by both the Donors and the Trustees. Mr. French has been making studies for this statue during his recent visit to Athens. It is believed that this gift will adorn the city as well as the University.

The convenience of those who use the main reading-room of the Library has been greatly served by the beautiful four-faced clock presented to the University by the Class of '74 of Columbia College. This clock was placed in position during the winter. Be-

sides completing the central bookcase of the readingroom which has been evidently incomplete, it ministers directly to the convenience of every reader.

The Southern Society of the City of New York has lodged with the Library, indefinitely, the "Garden Library of Southern Literature" belonging to that Society. It is a well-selected body of books, written by Southern writers and relating to the South, and forms a welcome addition to our resources.

The Society of the United States Daughters of the War of 1812, with the permission of the Trustees, has placed a tablet upon the outer wall of Fayer-weather Hall commemorative of the line of defences in the upper part of New York Island during that war.

By the will of the late Dorman B. Eaton, provision is made for the ultimate endowment of a professorship in the domain of municipal affairs. The bequest of \$100,000 is subject to a life interest on the part of Mrs. Eaton; but ultimately it will provide for a highly useful chair, which will be a worthy memorial of its public-spirited founder. No man of this generation has done more than Mr. Eaton to improve municipal administration. He drew the first law creating a Board of Health for the City of New York, and successfully established its constitutionality. He also drew, not only the first national law for civil-service reform, but also the first law adopted by the State of New York, which, in turn, was the first law to provide for the application of this system to municipalities. Under the provisions of this law, which then were only permissive, the first civil-service rules applicable to any city in the United States were issued for the city of Brooklyn, in 1883, by the writer of this

report, who was then Mayor of Brooklyn. It is an interesting coincidence that Mr. Eaton should have provided for this permanent memorial of himself, in the University thus indirectly connected with the advancement of the cause of civil-service reform which he had so much at heart.

The debt of the University growing out of its removal to Morningside Heights is still substantially \$3,000,000. The debit interest account of the year, however, was about \$10,000 less than a year ago. The deficiency on the educational account was reduced from \$43,000 to \$17,000. This deficiency is provided for by the General Guarantee Fund. This fund and the Special Guarantee Fund will provide substantially for the account of interest payable for the year under review.

Upon the retirement of Mr. Darling as Superintendent of Buildings and Grounds, the building which had been occupied by him as a dwelling house was taken possession of for educational purposes. It was given the name of South Hall; and was designated as the headquarters of the Department of Music and of the musical societies of the students. This assignment has proved an advantageous one for the musical interests of the University.

It gives me very great pleasure to report that two gifts have been received which make for the enlargement of the accommodations upon this site. The first is the gift of \$100,000 from the alumni of the University for the purpose of carrying up the walls of University Hall another story. The second is the

gift of \$100,000 from a warm friend of the University, who prefers that his name shall not be made public, to be used in erecting a building to serve as the head-quarters of the religious and spiritual activities of the students.

The enlargement of University Hall will do much for the convenience and comfort of all the members of the University. It will provide, in a temporary way, certainly, and yet for the time being adequately, a dining-hall for the University. The floor space will be as large as it will ultimately be, but the finish and the arrangements of the pantry and kitchen will be temporary in character. The removal of this function from the building in which it now is will be a double advantage. It will relieve other departments of an uncomfortable neighbor; and it will provide better facilities for lunching and dining. It will also enable the University to have an alumni dinner on Commencement Day, upon a suitable scale and under reasonably good conditions.

Besides the advantages thus outlined, this new story of University Hall will give to most of the administrative functions of the University their permanent quarters. It will also provide, temporarily, a large lecture room holding a thousand persons or more; and very welcome space for social uses both for officers and students. The removal to University Hall of the offices of the Superintendent of Buildings and Grounds, of the Bursar, the Registrar, and the Chief of the Bureau of Purchases and Supplies, from the basement of the Library in which they now are, will afford space that is much needed for the constantly growing work of the Library itself. It is

gratifying to record that this gift comes from graduates of every School in the University.

The building to be used as the headquarters for the spiritual and religious activities of the students has not yet received a name. It will stand on the western side of the grounds, directly opposite, and facing, the middle of the Library. Upon the eastern side of the grounds, a corresponding place has been assigned for a chapel. The building about to be erected has been given to the University under a delightfully broad and liberal charter. It has been placed under the administrative care of the Young Men's Christian Association, in order to secure for it the advantage of coöperation with the Y. M. C. A. buildings of other colleges and universities of the country; but it is specifically provided, in the letter of gift, that this building may be used as the headquarters of the religious and spiritual activities of the Roman Catholic and Hebrew students of the University as well as by Protestants. Its administration will be systematically directed to making all kinds of students feel at home in the building; and to ministering, in every possible way, to the development of their religious and spiritual life. It is to be to the University, in a certain sense, what the parish house is to a city church.

I cannot refrain from expressing my great happiness in the receipt of this gift. The donor, in conversation, remarked that the University had made ample provision for the intellectual and physical development of its students, and that it was his desire, therefore, to contribute this building for the development of their spiritual life. If now this building can be supplemented, as it should be, by the gift of a chapel

to stand on the eastern side of the grounds, the University will be as well equipped to minister to the spiritual side of the student's life as it already is to minister to his intellectual and physical development. It is a somewhat remarkable circumstance that neither Columbia College nor Columbia University has ever had a building wholly consecrated to religious uses. At the historic site of the College near the City Hall, and again at 49th Street, chapel services were maintained in a building partly used for academic purposes. At our present site, the chapel services are maintained in one of the public lecture rooms. I wish very much that some one who realizes the importance of dignified worship, in connection with the life of a university, would give to us a chapel that may be wholly consecrated to religious uses. It is estimated that such a building would cost \$125,000 to \$150,000. The University has certainly done well to maintain its chapel services without interruption, even under the unfriendly conditions which have been described. cannot be doubted, however, that the testimony of the University to the importance of the religious life will be more unequivocal when its chapel services are held in a suitable building wholly consecrated to the purpose. Now that suitable and dignified provision is to be made for the spiritual and religious activities of the students, outside of the chapel, I hope that the chapel itself will soon follow.

Next to the chapel, our greatest need is a suitable building for Columbia College. In the development of the new site, it was evidently good judgment to erect the buildings which were to be used for scientific purposes, especially for the uses to which they

were to be put. Instruction in the classics and in mathematics can be carried on in any room sufficiently large to hold the class; but scientific laboratories, in these days, have to be erected for the purpose. it came about that the headquarters of the College were established, for the time being, in one of the buildings that stood upon the site when it was purchased by the University. This building is cheerful enough; but it is not adequate in size, neither has it sufficient dignity, to be permanently the headquarters of the College out of which the University has grown. To replace this building with a suitable structure would cost approximately \$400,000; but even this sum, large as it is, ought not to be impossible of attainment in a community which owes so much to Columbia College. This need, which has existed ever since our removal to the new site, has become pressing now through the necessary removal of West Hall, which must take place in one way or another during the summer of 1901. The building already referred to which is to be used as the headquarters of the spiritual and religious life of the students, when it is completed will cover in part the site now occupied by West Hall. This will necessitate either the removal to another part of the grounds, or the destruction, of West Hall during the summer of 1901. The University absolutely needs the accommodation that is now afforded by West Hall. If this is to be provided in some other form, there is no form in which it can be so helpful as in the shape of a new and becoming building for Columbia College.

A careful reading of this report will certainly reveal the fact that the University closes the last academic year of the century in a highly prosperous condition. Its numbers were never so large, its prestige was never greater. Its usefulness was never so far-reaching in extent, nor so various in character. It approaches the opportunities and duties of a new century full of courage, full of aspiration, and full of hope. Its business organization and its educational equipment, both alike, are thoroughly modern; and its teaching staff is strong, able, and enthusiastic. Thankful for the past, it faces the future with a high determination to strive with all its power "for the advancement of the public good and the glory of Almighty God."

Respectfully,
SETH Low,
President.

## APPENDIX

#### VACANCIES

#### By Death

THOMAS EGLESTON, E.M., Ph.D.,

LL.D.,

Emeritus Professor of Mineralogy and Metallurgy.

FESSENDEN N. OTIS, M.D., Emeritus Professor of Genito-Urinary Diseases.

REV. CORNELIUS ROOSEVELT DUFFIE.

S.T.D., Chaplain Emeritus.

Lecturer in English Literature. RICHARD HOVEY, Litt.D.,

### By Resignation

HENRY S. MUNROE, Ph.D., JOHN F. PLUMMER, Jr., A.B., EDWARD A. DARLING,

Dean of the Schools of Applied Science. Assistant Secretary of the University. Superintendent of Buildings and Grounds.

PIERRE DE PEYSTER RICKETTS, E.M., Ph.D.

Professor of Analytical Chemistry and Assaying.

EUGENE HOWARD BABBITT, A.B.,

Instructor in the Germanic Languages and Literatures.

E. A. TUCKER, M.D., COLIN CAMPBELL STEWART, Ph.D., VICTOR LENHER, Ph.D., HERMAN A. LOOS, Ph.D. WILLIAM CLAFLIN ANDREWS, E.E.,

JOHN ARCHIBALD FAIRLIE, Ph.D.,

Tutor in Physiology. Assistant in Analytical Chemistry. Assistant in Analytical Chemistry.

Assistant in Physics.

Tutor in Obstetrics.

Prize Lecturer on Administration.

## By Expiration of Term

IRA T. VAN GIESON, M.D.,

Instructor in Pathology and Histology of the Nervous System.

JOHN WINTERS BRANNAN, M.D., JOHN B. WALKER, M.D.,

Instructor in General Diagnosis, Assistant Instructor in Operative Sur-

JONATHAN BRACE CHITTENDEN, Ph.D., Tutor in Mathematics. JOHN ALEXANDER MATHEWS, Ph.D., Tutor in General Chemistry. PARKER C. McIlhiney, Ph.D., THEODORE GREELY WHITE, Ph.D., CHARLES T. PARKER, M.D., EDWARD L. COSTER. LEON LAIZER WATTERS, A.M., EMILIUS W. SCHERR, A.M., ELI LONG, M.D., FRANK SUTLIFF HACKETT, A.B.,

Assistant in Metallurgy. Assistant in Physics. Assistant in Operative Surgery. Assistant in Mechanical Engineering. Assistant in General Chemistry. Assistant in Organic Chemistry. Assistant in Normal Histology. Assistant in Rhetoric and English

CLARK WISSLER, A.M., HENRY FISHER, B.S., WILLIAM W. COMSTOCK, A.B., ALBERT PHILIP BAUMANN, E.M., HARRY ALONZO CUSHING, Ph.D.,

Composition. Assistant in Psychology. Assistant in Analytical Chemistry.

Assistant in Physics. Assistant in Metallurgy. Lecturer in History.

#### PROMOTIONS

FREDERICK A. GOETZE,

From Assistant Superintendent To Superintendent of Buildings and Grounds.

JAMES C. EGBERT, Jr., Ph.D.,

From Adjunct Professor of Latin To Professor of Roman Archæology

ABRAHAM JACOBI, M.D.,

and Epigraphy. From Clinical Professor of the Diseases of Children

To Professor of the Diseases of Chil-

Nelson Glen McCrea, Ph.D.,

FRANK HARTLEY, M.D.

From Instructor in Latin To Adjunct Professor of Latin. From Instructor in Operative Surgery

To Professor of Clinical Surgery (and Instructor in Operative Surgery). From Instructor in Surgery

FRANCIS H. MARKOE, M.D.,

ELLSWORTH ELIOT, Jr., M.D.,

To Professor of Clinical Surgery. From Instructor in Minor Surgery

To Clinical Lecturer in Surgery, and Demonstrator in Surgery.

WILLIAM TENNEY BREWSTER, A.M.,

From Tutor in Rhetoric and English Composition

To Instructor in English.

GEORGE C. D. ODELL, Ph.D.,	From Tutor in Rhetoric and English Composition
WILLIAM ADDISON HERVEY, A.M.,	To Instructor in English.  From Tutor in the Germanic Languages and Literatures  To Instructor in the Germanic Lan-
Louis Auguste Loiseaux, B.S.,	guages and Literatures.  From Tutor in the Romance Languages and Literatures  To Instructor in the Romance Lan-
Cassius Jackson Keyser, A.M.,	guages and Literatures. From Tutor in Mathematics To Instructor in Mathematics.
LEA MCILVAINE LUQUER, C.E., Ph.D	., From Tutor in Mineralogy To Instructor in Mineralogy.
FRANK C. HOOPER, Met.E.,	From Assistant in Mining To Instructor in Mining.
George E. Brewer, M.D.,	From Assistant Demonstrator of Anatomy To Instructor in Surgery.
Joseph A. Blake, M.D.,	From Assistant Demonstrator of Anatomy
WALTON MARTIN, M.D.,	To Instructor in Surgery.  From Assistant Demonstrator of Anatomy  To Instructor in Surgery (and Assistant
FITZHUGH TOWNSEND, A.B., E.E.,	Demonstrator of Anatomy). From Assistant in Electrical Engineering
Frederick R. Bailey, M.D.,	To Tutor in Electrical Engineering. From Assistant in Normal Histology To Tutor in the Normal and Pathological Histology of the Nervous System.
JOHN H. LARKIN, M.D.,	From Assistant in Normal Histology To Tutor in Pathology.
PHILIP G. CARLETON, A.B.,	From Assistant in Rhetoric and English Composition To Tutor in English.
JOEL ELIAS SPINGARN, Ph.D.,	From Assistant in Literature
ARTHUR F. J. REMY, A.M.,	To Tutor in Comparative Literature. From Assistant in Germanic Philology To Tutor in the Germanic Languages and Literatures.
HENRY BEDINGER MITCHELL, E.E., A.M.,	From Assistant in Mathematics

To Tutor in Mathematics.

From Lecturer in Greek MORTIMER LAMSON EARLE, Ph.D.,

\* To Professor of Classical Philology.

DANIEL JORDAN, B.S., Pd.B.,

From Lecturer in the Romance Lan-

guages and Literatures

To Tutor in the Romance Languages and Literatures.

WILLIAM ROBERT SHEPHERD, Ph.D., From Lecturer in History To Tutor in History.

#### CHANGES OF TITLES

GEORGE E. WOODBERRY, A.B., From Professor of Literature

To Professor of Comparative Litera-

Brander Matthews, LL.B., D.C.L., From Professor of Literature

To Professor of Dramatic Literature.

HERMAN T. VULTE, Ph.D.,

From Instructor in General Chemistry

To Instructor in Chemistry.

EDMUND HOWD MILLER, Ph.D.,

RALPH EDWARD MEYER, C.E.,

From Instructor in Analytical Chemistry

and Assaying

To Instructor in Analytical Chemistry.

From Instructor in Drawing

To Instructor in Mechanical Engineer-

ing.

PHILIP HANSON HISS, Jr., M.D.,

From Instructor in Bacteriology

To Instructor in Bacteriology and Hy-

giene.

FRANCIS CARTER WOOD, M.D.,

From Instructor in Clinical Microscopy

To Instructor in Clinical Pathology.

JAMES DITMARS VOORHEES, M.D.,

From Instructor in Obstetrics To Tutor in Obstetrics.

GEORGE PATTEN BIGGS, M.D.,

From Demonstrator of Pathology

To Demonstrator in Pathological Anat-

omy.

JOSEPH STRUTHERS, Ph.D.,

CURTIS HIDDEN PAGE, Ph.D.,

From Tutor in Metallurgy

To Honorary Lecturer in Metallurgy.

From Tutor in the Romance Languages and Literatures

To Lecturer in the Romance Languages and Literatures.

MILTON C. WHITAKER, B.S.,

From Tutor in General Chemistry

To Tutor in Chemistry.

CAVALIER HARGRAVE JOUET, Ph.D.,

From Assistant in Analytical Chemistry To Lecturer in Analytical Chemistry.

<sup>\*</sup> On Barnard College Foundation.

JOHN GARRETT UNDERHILL, Ph.D.,

From Assistant in Literature To Assistant in Comparative Literature.

LEWIS NATHANIEL CHASE, A.M.,

From Assistant in Literature To Assistant in Comparative Literature.

JAMES DENNISON ROGERS, Ph.D.,

From Assistant in Greek

WILLIAM F. NEUMANN, M.D.,

To Lecturer in Greek. From Assistant in Bacteriology To Assistant in Bacteriology and Hygiene.

EVAN M. EVANS, M.D.,

From Assistant in Clinical Microscopy To Assistant in Clinical Pathology.

D. STUART DODGE JESSUP, M.D.,

From Assistant in Normal Histology To Assistant in Clinical Pathology.

HENRY F. HORNBOSTEL, Ph.B.,

From Assistant in Architectural Design To Lecturer in Architectural Design.

AUGUSTUS B. WADSWORTH, M.D.,

From Assistant in Bacteriology To Assistant in Bacteriology and Hy-

ALEXANDER B. JOHNSON, M.D.,

From Clinical Lecturer in Surgery To Instructor in Surgery.

#### APPOINTMENTS

FREDERICK PAUL KEPPEL, A.B., MRS. EDITH ROMEYN DARRACH. HERBERT G. LORD, A.M., WILLIAM PETERFIELD TRENT, LL.D., \* Professor of English Literature. WRAY ANNIN BENTLEY, B.S., WILLIAM H. CASWELL, M.D., ALBERT E. SUMNER, M.D., FRANKLIN A. DORMAN, M.D., E. MILTON FOOTE, M.D., A. V. S. LAMBERT, M.D., VICTOR COX PEDERSON, M.D., ROBERT ALLYN BUDINGTON, A.M., NATHAN WILLIAMS GREENE, M.D., H. E. HALE, M.D., RUDOLF TOMBO, Jr., A.M.

FREDERICK REMSEN HUTTON, Ph.D., Dean of the Schools of Applied Science. Assistant Secretary of the University. Adviser of Graduate Women Students. Professor of Philosophy.

> Instructor in Metallurgy. Instructor in Neurology. Instructor in Medical Diagnosis. Instructor in Obstetrics. Instructor in Surgery.

Assistant Demonstrator of Anatomy. Assistant Demonstrator of Anatomy.

Assistant Demonstrator of Physiology. Assistant Demonstrator of Physiology.

Assistant Demonstrator of Anatomy. Tutor in Germanic Languages and Lit-

eratures. Tutor in Chemistry. Tutor in Gynecology. Assistant in Chemistry.

CHARLES ALLEN WHITING, M.D., LEON LAIZER WATTERS, B.S.,

GEORGE A. GOODELL, A.M.,

<sup>\*</sup> On Barnard College Foundation.

HENRY FISHER, B.S., ALBERT PHILIP BAUMANN, E.M., CHARLES SIDNEY AYLMER-SMALL, E.E.,

LESLIE M. MCHARG, C.E., HOMER MUNROE DERR, A.B., WILLIAM W. COMSTOCK, A.B., PHILIP S. SABINE, M.D., PHILIP E. CARLETON, A. B., ALFRED TINGLE, Ph.D., HARLAN UPDEGRAFF, A.M., W. H. DAVIS, A.B., CHARLES H. ELLARD, A.M., HERMAN A. LOOS, Ph.D., DAVID H. POLLARD, A.B., GEORGE BRAXTON PEGRAM, A.B., ALADINE CUMMINGS LONGDEN, Ph.D., Assistant in Physics. JAMES THOMSON SHOTWELL, A.B., CHARLES W. CRAMPTON, M.D., JOHN I. MIDDLETON, M.D., ARTHUR COLON NEISH, A.B., CHARLES EDWARD CASPARI, A.B., BERGEN DAVIS, B.S., EMIL A. C. KEPPLER, A.M.,

GEORGE PHILIP KRAPP, Ph.D., A. BEZIAT DE BORDES.

Assistant in Analytical Chemistry. Assistant in Metallurgy.

Assistant in Electrical Engineering. Assistant in Civil Engineering.

Assistant in Physics.

Assistant in Physics. Assistant in Pathology.

Assistant in Rhetoric. Assistant in Analytical Chemistry.

Assistant in Philosophy and Education.

Assistant in Psychology. Assistant in Chemistry.

Assistant in Analytical Chemistry.

Assistant in Mathematics. Assistant in Physics.

Assistant in History.

Assistant in Normal Histology. Assistant in Normal Histology.

Assistant in Analytical Chemistry. Assistant in Organic Chemistry.

Assistant in Physics.

Assistant in Germanic Languages and Literatures.

Lecturer in English.

Lecturer in the Romance Languages and Literatures.

## RESIDENCES OF STUDENTS

New York City
463 380 778 482 309 2412

<sup>\*</sup> Exclusive of New York City.

#### FOREIGN COUNTRIES

1899-1900.	College.	Law.	Medicine.	Applied Science.	Political Science, Philosophy, and Pure Science,	Total.
Brought forward. Australia Canada. England France. Germany Ireland. Japan Mexico. New Brunswick. Persia. Sicily South Africa. Syria Turkey	I		1 1	4	309 3 1 1 1 1 1 1 329	2412 I 8 2 I I 1 4 I I 2 I I I

## PARENTAGE OF DEGREES

Earlham College, Ind	3	Pennsylvania Military College	2
Emory College, Va	I	Pennsylvania State College	2
Eureka College	I	Princeton University, N. J	27
Ft. Worth University	I	Puerto Rico Institute Provincial	Ι
Franklin College	I	Purdue University	1
Franklin and Marshall College	2	Richmond College	I
Georgetown University, D. C	3	Roanoke College, Va	
Grove City College, Pa	I	Rutgers College, N. J	<del>4</del> 8
C. The Life Heart		La Francia Callana Darablass	
Guilford College	I	St. Francis College, Brooklyn	I
Hamilton College, N. Y	3	St. Francis Xavier College, N. Y.	23
Hamline University	I	St. John's College, Brooklyn	I
Hamline University Harvard University, Mass	82	St. John's College, Md	I
IItime Callery Nat		Ct. John's College, Mar. Vl.	
Hastings College, Neb Hobart College, N. Y	1	St. John's College, New York	I
Hobart College, N. Y	7	St. Joseph's University	I
Holy Cross College, Mass	3	St. Louis University	I
Illinois Wesleyan University	3	St. Mary's University	I
		St. Dotor's College	
Indiana University	5	St. Peter's College	I
Jefferson Medical College, Pa	I	Santa Clara College Seton Hall College, N. J	I
Johns Hopkins University, Md	8	Seton Hall College, N. J	3
Kansas State University	I	South Dakota Agricultural Col-	•
Ventucky State College		lege	_
Kentucky State College	2	C W D -1 - 17	2
Kenyon College	2	lege SW. Presbyterian University,	
Knox College, Ill	4	1 enn	I
Lafayette College, Pa	IO	Southwestern University, Tex	2
Lebanon Valley College	I	State University of Iowa	
Lebiah University De			4
Lehigh University, Pa	2	Stevens Institute, Hoboken, N. J.	3
Leland Stanford Junior Univer-		Storr's Agricultural College	I
sity, Cal	20	Swarthmore College, Pa	2
Lenoir College, N. C	2	Syracuse University, N. Y	9
Manhattan College N V	3	Teachers College	2
Marietta College		Trinity College Conn	
Marietta College, O	2	Trinity College, Conn	9
Marion Sims College of Medicine	I	Trinity College, N. C Trinity University, Tex Union College, N. Y Union Theol Seminary N. V.	3
Maryland Agricultural College	I	Trinity University, Tex	I
Massachusetts Institute of Tech-		Union College, N. Y	8
nology	2	Union Theol. Seminary, N. Y	1
Medical College of Indiana	ī	U. S. Military Academy	ī
	1		
Medico-Chirurgical College, Phil-		U. S. Naval Academy	I
adelphia, Pa	I	University of Alabama	2
Memphis Hospital Medical Col-		University of Buffalo	1
lege	1	University of California	12
Mercer University		University of Chicago	2
Managed Callers Da	I	The transfer of Cincinnati	
Mercersberg College, Pa	I	University of Cincinnati	2
Miami University	2	University of Colorado	2
Michigan Agricultural College	1	University of Denver	I
Middleboro College, Vt	I	University of Georgia	6
Millsop College, Miss		University of Havana	
Mantana Chata Callana	I	Trains its of Trailing	5
Montana State College	I	University of Indiana	I
Mt. Union College, O	4	University of Iowa	2
Nevada State University	I	University of Kansas	4
New Hampshire State College	I	University of Kentucky	2
New York Law School			
New York Law School	4	University of Maryland	I
New York University	28	University of Michigan	9
Northwestern University	2	University of Minnesota	6
Notre Dame University	2	University of Missouri	2
Oberlin College, O	5	University of Nashville	2
Ohio State University			8
Ohio Woolevan Universit	7	University of Nebraska	
Ohio Wesleyan University	3	University of Nevada	1
Oskaloosa College	2	University of North Carolina	3
Pacific University	I	University of North Dakota	I
,		,	

University of Ohio. I University of Omaha I University of Oregon I University of Pennsylvania 4 University of Rochester, N. Y 9 University of Texas 4 University of Vermont 5 University of Virginia 4 University of Wisconsin 5 Vanderbilt University, Tenn 3 Virginia Military Institute I Wabash College, Ind 3 Wake Forest College 2 Washington and Lee Univ I Wesleyan University, Conn 14 Western Reserve University I Western University Onn 14 Western University Onn 15 Western University I Wm. Jewell College, Missouri I Williams College, Mass 39 Wooster University, O 1 Worcester Polytechnic Institute, Mass I Yale University, Conn 95	Gymnasium, Sandershausen I Higher Commercial College, Tokyo, Japan
Foreign Institutions: Acadia University, Nova Scotia. 2 Gymnase Coutanah de Neuchatel, Switzerland	Institutions:  American

#### **LECTURES**

## (Under the Auspices of the University at Large)

#### AT THE UNIVERSITY

November 23. Ely Cathedral—The Crown of St. Audrey. The Very Rev. Charles William Stubbs, D.D., Dean of Ely.

March 14. Training. Mr. Eustace H. Miles.

#### AT THE AMERICAN MUSEUM OF NATURAL HISTORY

# THE GREAT SOUTHWEST (New Mexico and Arizona)

George Wharton James of Pasadena, California

December 2. Down the Canyons of the Colorado River with Major Powell, with Geological Observations by the Way. (Illustrated with fine lantern slides of photographs made by Major Powell at the time of his explorations.)

- December 9. The Dynamic Geology of the Grand Canyon Region and a

  Descent from the "Rim" to the River on All the Trails.
  - 16. The Painted Desert and its Surroundings. Including the San Francisco Mountains, the Lava Flows of Northern Arizona, the Canyon of the Colorado Chiquito, the Petrified Forest, etc.
  - 23. The Mesas of Acoma, Zuñi, and Moki, with Indian Legends of Awatobi, Tai-yo-al-a-ni, Katzimo, Cibolleta, and Mount San Mateo.
  - " 30. The Canyons of the Cliff Dwellers, De Chelly, Del Muerto, Colorado Chiquito, Walnut, Havasu, and Shinumo.

#### ASTRONOMY

## Prof. J. K. Rees of Columbia University

- January 6. Comets and Meteors.
  - Recent Interesting Achievements of Astronomical Photography.
  - ' 20. The Solar Eclipse of May 28, 1900; Path of Totality across the United States.
    - 27. Some American Observatories; their Instruments and Work.

#### PALÆONTOLOGY

- February 3. Mr. Gilbert van Ingen, of the Department of Geology, Columbia University—The Oldest Fossils.
  - 10. Dr. Wm. Diller Matthew, of the American Museum of Natural History—The Habits of Some Extinct Animals and the Causes of their Extinction.
  - '' 17. Dr. Arthur Hollick, of the Department of Geology, Columbia University—The Vegetable Kingdom, from its Beginning to the Appearance of Modern Types.
  - 24. Dr. John Mason Clarke, State Palæontologist—The Geological History of Parasites.

#### **METALLURGY**

- March 10. Mr. Albert Sauveur, Lecturer on Metallurgy, Harvard University—The Constitution of Metallic Alloys in the Light of Modern Research.
  - ' 17. Mr. Henry Souther, Consulting Engineer, of Hartford, Conn.—Toledo Blades: Rationale of the Procedure in Manufacturing them and Other Steel Objects Explained by the Microscope.
    - Professor H. O. Hofman, of the Massachusetts Institute of Technology, Boston, Mass.—Lead Smelting in the United States.
  - "
    31. Professor J. W. Richards, of the Lehigh University, South
    Bethlehem, Pa.—Aluminium.

#### AT THE METROPOLITAN MUSEUM OF ART

#### THE ARTISTS OF BARBIZON

#### Charles Sprague Smith

- December 2. The Forest of Fontainebleau.
  - " o. Millet.
  - " 16. Corot.
  - ' 23. Rousseau.
  - " 30. Barye.

#### THE ART OF THE JAPANESE

#### W. B. Van Ingen

- January 6. The Japanese.
  - 13. The Graphic Expression of the Japanese.
  - " 20. Hokusai.
  - " 27. A Study in Japanese Perspective.

#### FRENCH ARCHITECTURE AND SCULPTURE

## Monsieur Jean Schopfer of Paris

- February 3. Gothic Architecture; the System; the Monuments.
  - Gothic Monumental Statuary, Thirteenth, Fourteenth, and Fifteenth Centuries.
  - " 17. The Architecture of the Renaissance; the Neoclassic, and Origins of Modern Architecture.
  - " 24. The Sculpture of the Renaissance and Modern Times, Sixteenth, Seventeenth, and Eighteenth Centuries.

#### ART AND RELIGION IN THE PRIMITIVE EAST

#### Rev. Wm. Hayes Ward, D.D.

- March 3. Conditions of Primitive Civilization in Babylonia.
  - 10. Primitive Art of Babylonia (before 2500 B.C.)
  - " 17. Primitive Religion of Babylonia.
  - 24. Origin of Dualism in Primitive Babylonia. (Bel and the Dragon.)
    - 31. The Religion of the Hittites.

#### AT COOPER UNION

#### DRAMAS OF SHAKESPEARE

## Henry Austin Clapp

December 5. Henry V.

. .

- ' 12. Twelfth Night.
- " 19. King Lear.
- " 26. The Winter's Tale.

## LETTERS AND MANNERS (Second Series)

#### James E. Learned

- January

  2. Manners—The Study of Behavior—A Sculpturesque Art
  —Elementary Principles—The Spirit and the Soul of
  Manners—Illustrative Examples—Stupidity of the Selfish
  —Rewards of the Generous—Dr. Crozier on American
  Manners—Public or Official Manners—The Regard for
  Privacy—Mountain Teachers.
  - Journalism—A Subject of Popular Curiosity—Early Hindrances of the Press—Licensing Acts, Taxations, and Government Prosecutions—News Letters—The First Daily Newspaper—Beginnings in America—Modern Development and Difficulties—Interior View of a Newspaper Office—The Future of Journalism.
  - r6. Reading—Language and the Alphabet as Marvels—Relations of Thought and Speech—Bad Reading Habits—Their Political Effect—Effect on the Mind—Special Subjects and Desultory Reading—The Flood of Books—Real End of All Reading—Originals and Translations—Praise of Books.
  - 23. Sir Thomas Browne—The Great Seventeenth Century—
    Flowering of English Prose—Sudden Fame of the "Religio
    Medici"—The "Vulgar Errors"—"Urn Burial"—
    Knighthood—Illness and Death—Posthumous Publications
    —Prediction Concerning America—Examples of Thought
    and Style.
  - 30. William Hazlitt—A Too Much Neglected Author—Life in America—Early Works—Marriage—High Tide of Reputation—Domestic Trouble—A Strange Infatuation—Calamitous Second Marriage—Isolation—The Final Disappointment—Illness and Death—Illustrations of his Manner—Estimate of his Talent.

#### RUSSIA AND RUSSIANS

#### Alexander S. Chessin

Late of the Imperial University of St. Petersburg, and of the Johns Hopkins University, Baltimore

February 6. A Glance into the History of Russian Empire: Slavic and Western Elements of Civilization—Origin of Russia—Christianity and Byzantine Influence—Feudalism in Russia—Tartar Invasions and Isolation of Russia—Rise of the Muscovite State—Growth of Autocracy—Peter the Great and Catherine II.—Social and Political Dualism of Modern Russia—Expansion and Progress of Russia in the East—The Secret of her Success.

- February 13. Origin, Growth, and Abolition of Personal Servitude:

  Causes which Led to Bondage of Peasants to the Soil—
  Prohibitory Acts of 1597 and 1648—The Two Forms of
  Servitude: Obrok and Carshchina—Crimean War as a
  Factor in Precipitating Reforms—Alexander II. and the
  Act of Emancipation (1861)—How it Affected Nobility
  and Peasantry—Regeneration of Russia.
  - 27. Religious Belief; Church and Relation of Church and State:
    Sincerity of Religious Belief—Paganism, Sorcery, and Superstitions—Ritualism of the Church and its Effect upon the Religious Views of the People—Identification of Rationality and Religion—Character and Constitution of the Established Church—Early Period of Complete Dependency upon Constantinople—Transition State of Independence and of Glory—Conflict of Church and State—Final and Complete Subjection to the Czar.

#### MODERN RACIAL PROBLEMS

## William Z. Ripley, Ph.D.

Assistant Professor of Sociology, Massachusetts Institute of Technology, Boston; Lecturer in Racial Demography at Columbia University

- March 6. The Racial Origin of the English people.
  - 13. The Jews as a Race and People.
  - 20. The Peoples and Politics of the Balkan States.
  - " 27. Racial Aspects of the Philippine Problem.

## (Lectures Under Departmental Auspices)

#### DEPARTMENT OF ARCHITECTURE

January 9. Teaching Drawing. J. Liberty Tad. April 3 and 10. Michelangelo. Edward R. Smith.

#### DEPARTMENT OF INDO-IRANIAN LANGUAGES

## Professor A. V. W. Jackson

- December 12. The Veda, or the Ancient Hymns of India.
  - The Veda Continued, or the Development of Early Hindu Religious Thought.
- January 9. The Mahābhārata, or Sanskrit Epic Poetry.
  - " 16. The Rāmāyana and Other Heroic Poems.
  - " 23. The Hindu Drama and Kālidāsa.
  - " 30. The Successors of Kālidāsa in Sanskrit Dramatic Poetry.

- February 13. The Later Sanskrit Drama. Montgomery Schuyler, Jr.
  - 20. India at the Closing of the Century. Rev. J. E. Abbott,
  - 27. The Influence of Oriental Literature on Goethe. Arthur F. J. Remy.

## DEPARTMENT OF THE GERMANIC LANGUAGES AND LITERATURES

## HOLLAND SOCIETY LECTURES ON DUTCH LITERATURE

## Leonard Charles van Noppen.

- January 10. Jacob Cats, the Poet of the Commonplace.
  - ' 17. Vondel, the Poet of the Sublime.
  - " 24. Bellamy, the Pathfinder.

4 6

- 31. The Younger Dutch Poets.
- February 7. The Dutch Language: Past, Present, and Future.
  - Am Eingange des Jahrhunderts. Rev. Gustav Gottheil, Ph.D., Rabbi of Temple Emanu-El.
  - Sprachsünden der Deutsch-Amerikaner, Charles A. Bratter, Foreign Editor of the Staats-Zeitung.
- March 7. Mythen der Naturvölker. Franz Boas, Ph.D., Columbia University.
  - "
    14. Das Geistesleben der deutschen Universitäten in den Sechsziger Jahren. Julius Sachs, Ph.D., Collegiate Institute.
  - " 19. The Iphigenia in Greek Tragedy. Professor E. D. Perry.
    - 20. Goethe's Iphigenie auf Tauris. Professor Calvin Thomas.
  - 21. Berechtigung, Schwierigkeiten und Errungenschaften der deutsch-amerikanischen Presse. George von Skal, Managing Editor of the Staats-Zeitung.
  - 28. Das Oberammergauer Passionsspiel. Illustrirt. Rev. August Ulmann, S.T.D., Rector of Trinity School.
- April 4. Zwei und ein halb Jahrhunderte deutschen Lebens in Amerika. Rudolf Cronau.
  - " II. Erinnerungen aus dem deutschen Reichstage. Louis Viereck, late member of the German Reichstag.
  - " 18. Das japanische Theater. Sadakichi Hartmann.
  - 25. Bürger, ein deutscher Vorgänger William Wordsworths. Emil A. C. Keppler, A.M.

## DEPARTMENT OF ROMANCE LANGUAGES AND LITERATURES

- November 2. La République française en 1799 et en 1899. Adolphe Cohn.
  - 9. Paris et la France à la veille de l'Exposition de 1900. Louis Herbette, Conseiller d'État.

..

- November 16. L'Architecture gothique ; le Système ; les Monuments. Jean Schopfer.
  - " 23. La Statuaire monumentale au XIIIe, au XIVe et au XVe Siècle. Jean Schopfer.
- December 7. L'Architecture de la Renaissance; le Neo-classique et les origines de l'Architecture moderne. Jean Schopfer.
  - ' 14. La Statuaire de la Renaissance et des Temps modernes jusqu'à la Fin du XVIIIe Siècle. Jean Schopfer.
    - 21. L'Année 1899 en France. Adolphe Cohn.
- January 4. Châteaubriand. Adolphe Cohn.
  - " II. Madame de Staël. Adolphe Cohn.
    - ' 18. Lamartine. Adolphe Cohn.
      - 25. Béranger. Adolphe Cohn.
- February 15. Henri de Regnier. A. Schinz.
- rebruary 15. Henri de Regnier. A. Schinz.
- March I. Anciennes Chroniques Mexicaines. Henry Bargy.
  - " 8. Casimir Delavigne. Adolphe Cohn.
    - 15. Alexandre Dumas. Adolphe Cohn.

#### LA POÉSIE CONTEMPORAINE EN FRANCE

### Henri de Regnier

- March 22. Les Parnassiens.
  - " 24. Deux Novateurs. Paul Verlaine et Stéphane Mallarmé.
  - ' 26. La Poésie d'aujourd'hui.
  - ' 29. Portraits de Poètes.
- April 5. La Maison de Molière. Adolphe Cohn.
  - 12. Romanciers espagnols contemporains. L. A. Loiseaux.
  - 19. L'Immigration française aux États-Unis. Edmond Bru-
  - " 26. L'Exposition de 1900. Adolphe Cohn.

#### DEPARTMENT OF ZOÖLOGY

#### REGENERATION AND EXPERIMENTAL EMBRYOLOGY

### Professor Thomas H. Morgan

#### Of Bryn Mawr College

Sixth Series of University Lectures in Biology (Dyckman Fund)

January 16. Introduction. Historical Review: Typical Processes of Regeneration—Regeneration of Lost Parts in the Vertebrates—Regeneration of the Head, Tail, and Other Regions of the Body in Invertebrates—Formation of Entire Animals from Fragments of the Body and from Fragments of the Segmenting Egg—Regeneration in the One-Celled Organisms—Regeneration in the Embryo and in the Egg—Conclusions.

January 19. The Conditions that Influence Regeneration: Physiological Regeneration—Pathological Regeneration—Influence of External Conditions—Regeneration and Liability to Injury—The Development of Isolated Blastomeres—Direct Influence of the Environment—Influence of Internal Conditions; Regeneration of the Eye—Regeneration in "Lower" and in "Higher" Forms.

23. Some Special Problems of Regeneration and Development:
Specification of the Tissues—Germ-Layer Hypothesis—
Experiments on Grafting Animals—Grafting Parts of the
Same and of Different Species—General Problem of Speci-

fication.

26. Development of the Egg in the Light of Experimental Embryology: Roux's Mosaic Theory of Development — Experiments and Theories of Hertwig, Driesch, Wilson, and Others—Præformation versus Epigenesis—Origin of Differentiation in the Embryo and of Specification in the Adult—Conclusions.

"
30. The Relations of Growth, Development, and Regeneration:
Bonnet's Theory of Præformation——Spencer's Comparison of Crystal-Growth and Regeneration—Pflüger's Molecular Hypothesis—Sachs's Theory of Specific Stuffs—Weismann's Theory of Præformation under the Guidance of Natural Selection—Theory of the Specification of the Tissues; its Limitations—The Factors of Regeneration.

# OFFICERS TEACHING EXCLUSIVELY IN BARNARD COLLEGE

#### Instructors

HERBERT MAULE RICHARDS, S.D., Instructor in Botany MARGARET E. MALTBY, Ph.D., Instructor in Chemistry Charles Knapp, Ph.D., Instructor in Classical Philology Henry E. Crampton, Ph.D., Instructor in Zoölogy

#### Tutors

LOUISE BRISBIN DUNN, A.M., Tutor in Botany
RUDOLF TOMBO, Sr., Ph.D., Tutor in German
HENRY JAGOE BURCHELL, Jr., A.M., Tutor in Classical Philology

EDWARD KASNER, Ph.D., Tutor in Mathematics WILLIAM S. DAY, Ph.D., Tutor in Physics

#### Assistants

ELEANOR KELLER, A.B., Assistant in Chemistry
JEANNETTE BLISS GILLESPY, A.B., Assistant in Rhetoric
WILHELM ALFRED BRAUN, A.B., Assistant in German
GRACE ANDREWS, A.M., Assistant in Mathematics
ADA WATTERSON, A.M., Assistant in Botany and Zoölogy

#### Lecturers

HENRY BARGY, A.M., Lecturer in Romance Languages and Literatures

WILLIAM A. NITZE, Ph.D., Lecturer in Romance Languages and Literatures

CHARLES LEE RAPER, A.B., Lecturer in History

#### AGREEMENT BETWEEN THE TRUSTEES OF COLUMBIA COL-LEGE IN THE CITY OF NEW YORK AND BARNARD COLLEGE, NEW YORK CITY

THIS AGREEMENT, made the nineteenth of January, nineteen hundred, between THE TRUSTEES OF COLUMBIA COLLEGE IN THE CITY OF NEW YORK, and BARNARD COLLEGE (hereinafter referred to, respectively, as "Columbia University" or "the University," and "Barnard College"),

#### WITNESSETH:

For the purpose of incorporating Barnard College, a college for women, in the educational system of the University, it is mutually covenanted and agreed:

FIRST. That the President of the University shall be, ex-officio, President of Barnard College, and if not already a Trustee of Barnard College he shall be so elected at the earliest opportunity. He shall preside at the meetings of the Faculty of Barnard College and shall have general supervision and direction of the educational administration of such College as in the other schools of the University.

SECOND. That the internal administration of Barnard College shall be conducted by a Dean who shall be appointed by the President of the University, by and with the advice and consent of the Trustees of Barnard College. In the absence of the Dean, an Acting Dean may be appointed by the President.

THIRD. That Barnard College shall be represented in the University Council of Columbia University by its Dean, who shall have the right to vote in the University Council upon all questions. The Faculty of Barnard College shall consist of the President, the Dean, and all the professors on the staff of the University who give instruction in Barnard College. Whenever Barnard

College shall maintain ten or more professors in its Faculty it shall be entitled to a representative in the Council additional to the Dean.

FOURTH. That Barnard College shall provide for, support, and maintain such officers of instruction as may, from time to time, be agreed on, as follows, to wit:

They shall be nominated by the Dean of Barnard College, with the approval of the Trustees of Barnard College and of the President of the University, and shall be appointed and reappointed by the University according to its custom. Their standing shall be the same in all respects as that of other like officers in the University — For all services rendered in the University by officers so appointed an equivalent amount of service shall be rendered in Barnard College by other officers of the University of like grade, as may be determined from time to time, with the consent of the officers concerned, by the Dean of the College and the President of the University.

Members of the Faculty of Barnard College may be either men or women.

In the month of January in each year, or at such other time as may be mutually agreed upon, the Dean of Barnard College, with the approval of the Trustees of Barnard College, and after conference with the heads of Departments in such College, shall submit to the President of the University a statement, showing:

First. The estimated number of the students in each Class at Barnard College for whom instruction is to be provided during the next academic year.

Second. The number and grade of officers of instruction, and amount of service desired in each subject.

Such statement shall be subject to the approval and revision of the President, upon all questions not reserved by this agreement to the Trustees or Dean of Barnard College.

FIFTH. That, on and after July 1st, 1904, all of the instruction for women leading to the degree of Bachelor of Arts shall be given separately in Barnard College, except that courses open to Seniors of Columbia College which are counted towards a Teachers College diploma shall continue to be open to Seniors in Barnard College. Barnard College will assume as rapidly as possible all of the instruction for women in the Senior year, other than the courses leading towards a Teachers College diploma, without regard to the time limit contained in this section, and undertakes to maintain every professorship established at its instance, as hereinbefore provided, so long as the services of the incumbent thereof or an equivalent therefor shall be rendered in Barnard College; and when Barnard College has adequately provided for its undergraduate work, it will, as its means allow, establish additional professorships in the University, upon foundations providing for courses which shall be open to men and women, to the end that opportunities for higher education may be enlarged for both men and women.

SIXTH. That the University will accept women who have taken their first

degree on the same terms as men, as students of the University, and as candidates for the degrees of Master of Arts and Doctor of Philosophy under the Faculties of Philosophy, Political Science, and Pure Science, in such courses as have been or may be designated by these Faculties, with the consent of those delivering the courses, and will make suitable provision for the oversight of such women.

The University will confer the degree of Bachelor of Arts upon the students of Barnard College who shall have satisfactorily fulfilled in Barnard College the requirements of the University Statutes for that degree. The courses in Barnard College leading to the degree of Bachelor of Arts shall be determined and administered by its own Faculty, and all examinations for admission to Barnard College and in course shall be conducted under the authority of the Faculty of Barnard College. The diploma shall be signed by the President of the University and by the Dean of Barnard College. The degree of Bachelor of Arts conferred upon the graduates of Barnard College shall be maintained at all times as a degree of equal value with the degree of Bachelor of Arts conferred upon the graduates of Columbia College. The equivalency of the two degrees shall be maintained in such manner as the University Council may prescribe.

SEVENTH. That, so long as this Agreement is in force, Barnard College shall grant no degrees. It shall retain the right to grant certificates to students not candidates for a degree, and it shall exercise all other corporate rights and powers which are not delegated to the University by this Agreement. But this Agreement shall not be deemed a surrender by Barnard College of any powers conferred upon it by charter.

EIGHTH. That Barnard College shall retain its separate corporate organization, and that the Trustees of Barnard College shall continue to provide for the financial support thereof; it being distinctly understood and agreed that the University is and shall be under no implied obligation, responsibility, or liability, of any kind whatsoever, for the maintenance, support, direction, or management of Barnard College, or for the disbursement of the income thereof, except as stated in Section 4 of this Agreement; and that all and every such obligation or liability shall be strictly limited to the duties and obligations expressly and in terms assumed and agreed to by the University.

NINTH. That for each student of Barnard College pursuing courses in the University in the Senior year leading to a degree, Barnard College shall pay the University at the rate of \$10 an hour per week throughout the year, with a maximum fee of \$120 a year for any one student.

TENTH. That the libraries of the University and of Barnard College shall be open upon equal terms to all women students of the University and of Barnard College.

ELEVENTH. This Agreement may be modified at any time by mutual consent expressed in writing, and may be terminated at the end of any academic year, after one year's notice in writing from either party to the other.

TWELFTH. This Agreement shall take effect immediately.

### AGREEMENT BETWEEN THE TRUSTEES OF COLUMBIA COL-LEGE IN THE CITY OF NEW YORK AND TEACHERS COLLEGE

THIS AGREEMENT, made the tenth day of May, one thousand nine hundred, between

THE TRUSTEES OF COLUMBIA COLLEGE IN THE CITY OF NEW YORK, and TEACHERS COLLEGE (hereinafter referred to respectively as "Columbia University," or "the University," and "Teachers College"),

#### WITNESSETH:

For the purpose of securing to the students of the above named University and College reciprocal advantages and opportunities, and especially for the purpose of including Teachers College as a professional school for teachers in the educational system of the University, it is mutually covenanted and agreed:

FIRST. That the President of the University shall be, ex-officio, President of Teachers College. He shall preside at the meetings of the Faculty of Teachers College and shall have general supervision and direction of the educational administration of such College as in the other schools of the University.

SECOND. That the internal administration of Teachers College shall be conducted by a Dean who shall be appointed by the Trustees of Teachers College on the nomination of the President of the University.

THIRD. That Teachers College shall be represented in the University Council of Columbia University by its Dean, who shall have the right to vote in the University Council upon all questions. Whenever Teachers College shall maintain ten or more professors in its Faculty, it shall be entitled to a representative in the Council, additional to the Dean, who shall be elected by such Faculty.

FOURTH. That the University Professors of Philosophy and Education and of Psychology, and their successors, by whatever title they may be designated, shall be members ex-officio of the Faculty of Teachers College, and the Professor of Mechanical Engineering shall also be a member ex-officio of such Faculty so long as the workshops of Teachers College are used by students of his department. Such professors shall have no right to vote for the representative of such Faculty in the University Council.

FIFTH. That the University, upon the recommendation of the Faculty of Teachers College, will confer such diplomas as may from time to time be authorized by the Trustees of Teachers College and approved by the University, upon students and graduates of Teachers College who may satisfactorily fulfil all the requirements of the regulations of Teachers College.

SIXTH. That the University will confer an appropriate degree, in addition to a diploma, upon such students of Teachers College as may satisfactorily fulfil all the requirements therefor, as determined by the Faculty of Teachers

College in conformity with regulations to be adopted by the University Council and approved by the Trustees of the University.

SEVENTH. That, so long as this agreement is in force, Teachers College shall grant no degrees nor diplomas.

EIGHTH. That Teachers College shall continue to exercise the direction and control of all instruction given therein, and the right to grant certificates therefor to students not candidates for a degree: and also, with the approval of the University Council, to students who are candidates for a degree; and shall exercise all other corporate rights and powers which are not delegated to the University by this agreement; but this agreement shall not be deemed a surrender by Teachers College of any powers conferred upon it by charter.

NINTH. That Teachers College shall retain its separate corporate organization, and that the Trustees of Teachers College shall continue to provide for the financial support thereof, it being distinctly understood and agreed that the University is and shall be under no implied obligation, responsibility, or liability of any kind whatsoever for the maintenance, support, direction, or management of Teachers College, or for the disbursement of the income thereof; but that all and every such obligation or liability shall be strictly limited to the duties and obligations hereinbefore expressly and in terms assumed and agreed to by the University.

TENTH. That the courses of instruction given in either the University or Teachers College shall be open, subject to the general regulations of each institution, to every qualified student who has duly matriculated in either the University or Teachers College.

ELEVENTH. That, for each student of the University pursuing elective courses in Teachers College leading to a degree, the University shall pay Teachers College at the rate of \$10 an hour per week throughout the year, with a maximum fee of \$120 a year for any one student. For each student of Teachers College pursuing elective courses in the University, Teachers College shall pay the University at the rate of \$10 an hour, with a maximum fee of \$120. The fee for special students pursuing a partial or irregular course in either institution shall be calculated at the rate of \$15 an hour, with a maximum fee of \$120. No payment shall be called for from one to the other on account of students or instructors enjoying free tuition either in the University or the College. For the purpose of determining the fees under this agreement, a laboratory or shop hour shall count as half an hour. For courses in one institution which are required of students of the other, the institution giving the courses shall be paid by the other the pro rata cost of such instruction, as nearly as it can be ascertained.

TWELFTH. It is hereby further agreed that Barnard College may become a party to this agreement whenever, during the continuance thereof, it shall ratify and adopt the same. Such ratification and adoption shall confirm this agreement as between Barnard College and Teachers College, so far as it applies.

THIRTEENTH. That the libraries of the University and of the Colleges which now are or may hereafter become parties to this agreement shall be open, upon equal terms, to all students of the University and of such Colleges.

FOURTEENTH. This Agreement shall take effect July 1, 1900, and shall supersede the agreement between Columbia College, Teachers College, and Barnard College, dated March 1, 1898.

FIFTEENTH. This Agreement may be modified at any time by mutual consent expressed in writing, and may be terminated at the end of any academic year, and after one year's notice in writing, from any party to the others.

#### COLUMBIA COLLEGE

#### REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900

# To the President of Columbia University in the City of New York:

#### SIR:

I beg to submit herewith my report upon the College for the academic year ending June 30, 1900.

The number of students matriculated at the beginning of the year was 460; 5 entered subsequently, making the total number 465, distributed in the several classes as follows:

Seniors	93
Juniors	86
Sophomores	II2
Freshmen	119
Special students	55
	465
University students taking one or more courses in	
the College	19
	484

The ages of the students at the beginning of the year were as in the following table:

AGES OF STUDENTS

Class.	Number in Class.	Average.	Oldest.	Youngest.
Senior	93	22.	48	18
Junior	86	20.4	48	17
Sophomore	112	19.	23	16
Freshman	119	18.3	24	15
Special Studen	ts 55	21.	58	15
University st	u-			
dents	19	26.5	35	19
	484	21.2	58	15

## Number in each class of the following ages:

			Ser	niors.	Juniors.	Sopho- mores.	Fresh- men.	Spe- cials.	University Students.
Between	15	and	16				3	I	
"	16	and	17			8	19	2	
66	17	and	18		2	22	25	6	
. "	18	and	19	2	13	23	36	10	
66	19	and	20	13	29	35	22	10	2
66	20	and	2 I	28	22	I 2	8	8	
"	2 I	and	22	2 I	10	7	4	4	4
6.	22	and	23	15	5	4	1	3	I
"	23	and	24	5	3	I		5	2
"	24	and	25	2	I		1	2	
"	25	and	26					I	Ţ
"	26	and	27	1					I
"	27	and	28					I	,
44	28	and	29	1					I
"	29	and	30	ï					I
"	30	and		, і	•••				
"	32	and	33						. 2
"	33	and	34						I
46	34	and	35	I				I	2
"	35	and	36						I
"	38	and	39	I					
44	48	and	49	I	I				
"	58	and	59					ĭ	

#### The residences of the students were as follows:

Alabama		1
California		2
Connecticut		7
Georgia		2
Illinois		3
Indiana		I
Iowa		2
Kentucky		I
Maryland		r
Massachusetts		2
Michigan		4
Minnesota		I
Missouri		1
Montana		I
New Jersey		47
New York City		321
New York State (exclusive of the City of New Y	ork)	63
North Carolina		2
Ohio		3
Pennsylvania		6
South Carolina		1
Texas		4
Utah		2
Vermont		1
West Virginia		1
Foreign Countries—		
Canada		2
England		1
Japan		1

Of the students admitted, twenty-eight were received on certificate from other colleges: nine to the Senior class—one each from the College of the City of New York, Cornell College (Iowa), Georgetown College, Trinity College (Dublin), Illinois Wesleyan University, Williams College, University of California, Colgate University, and University of North Carolina; thirteen to the Junior class from the

following institutions: five from the College of the City of New York, and one each from Wesleyan University, Rutgers College, University of Texas, University of Illinois, University of Indiana, University of Tennessee, Shurtleff College, and University of Nashville; six to the Sophomore class from the following institutions: three from the College of the City of New York, two from Adelphi College, and one from Syracuse University. It may be of interest to note that three of those who entered the Senior class had, one the degree of Bachelor of Science, one the degree of Bachelor of Laws, and one the degree of Master of Laws; and that two of those who entered the Junior class had the degree of Bachelor of Arts from other institutions.

Of the members of the Freshman class, fifty-nine were admitted provisionally — that is, with entrance conditions to fulfil. Such students are held under probation till the end of the first half-year. Just prior to the close of the probationary period, the Dean considers the special reports made by heads of departments in the case of each conditioned student, and determines whether he is to be admitted to full standing, have his period of probation extended, or be dropped from the roll.

Under this provision, fourteen were advanced to full standing at the end of the first term; the others had their period of probation extended until the beginning of the next academic year. Four members of the Freshman class, five of the Sophomore class, three members of the Senior class, and six special students retired from College during the year.

Seventy-seven members of the Senior class, three "belated" Seniors, eighty in all, satisfied all the requirements for the baccalaureate degree and had conferred upon them, at the Commencement held on the 13th instant, the degree of Bachelor of Arts.

Thirteen members of the Senior class failed to satisfy the requirements for a degree and were not graduated.

The relations of this College to Barnard College are such that Columbia is responsible for the efficiency and sufficiency of all the courses in that College leading to a degree, and on proper certification, grants to students thereof the degree of Bachelor of Arts. It was my duty, therefore, as Dean of this College, to examine with care the courses pursued by the members of the Senior class of Barnard College from the beginning to the end of their academic career. This duty I discharged, and certified to the President that thirty-eight members of that class (all but one) had fulfilled the requirements for the baccalaureate degree—and those so certified received that degree at Commencement. As Barnard College will, after July 1st, have a separate and independent existence within the University, the Dean of Columbia College will not hereafter have this duty of certification to perform: and I take this opportunity to express my heartiest good wishes for the continued advancement and prosperity of Barnard in her new relations to the University.

The subjects of study selected by the special students were:

Architecture	1	Mathematics	Ι2
Chemistry	15	Mechanical Engineering	I
Economics	15	Mineralogy	I
Electrical Engineering	1	Music	I
English	25	Philosophy	6
French	20	Physics	7
Geology	I	Psychology	II
German	16	Rhetoric	40
Greek	2	Sociology	3
History	34	Spanish	2
Latin	4	Zoölogy	3
Literature	I		

Of the eighty-six members in the Junior class, three were "belated" Seniors—that is to say, were required to matriculate as Juniors because of deficiency in some requirements of that class; of the one hundred and twelve members of the Sophomore class, five were, in the same sense, "belated" Juniors; and of the one hundred and nineteen members of the Freshman class, fifteen were, in the same sense, "belated" Sophomores.

Students are classified in three groups, according to the topics presented by them for entrance.

Candidates for admission to the Freshman class must pass satisfactory examination in English, elementary mathematics, and Latin, and also in one of the following groups of subjects:

The required number of hours of attendance a week for all groups, excluding those who are repeating, in the Freshman class, is fifteen. Of the new members of that class, 34 entered in Group I, 36 in Group II, and 34 in Group III. Freshmen in Groups I and II are required to take twelve hours of prescribed studies and one elective course of three hours. In Group I the prescribed studies are Greek or Latin, elementary German, mathematics, and rhetoric; the elective courses, of which one must be taken, are chemistry, French, Latin, Greek, physics, and history. The choice of electives made by the 34 students in Group I was numerically as follows:

Chemistry	4
French	7
Greek	
History	I
Mathematics	
Physics	13

In Group II the prescribed studies are the same as those in Group I, with the substitution of elementary French for elementary German; and the elective courses are the same, with the substitution of German for French. The choice of electives made by the 36 students in Group II was numerically as follows:

Chemistry	5
German	10
Greek	16
History	3
Italian	
Physics	Q

Of the seventy Freshmen in Groups I and II, thirty-three continued the study of both Greek and Latin during the year.

Freshmen in Group III are required to take six hours of prescribed studies and three elective courses of three hours each. The prescribed studies are Latin and rhetoric; the elective courses, of which three must be taken, are chemistry, physics, mathematics, mechanical engineering, French, German, and elementary Greek. The choice of electives made by the thirty-four students in Group III was numerically as follows:

Chemistry	11
French	24
German	22
Greek	1
History	8
Mathematics	27
Mechanical Engineering	1
Physics	15

The required number of hours of attendance a week for the Sophomore class is sixteen. Students in Groups I and II have seven hours of prescribed studies and nine hours of elective; the prescribed studies are history, rhetoric, and a course in botany, chemistry, physics, or zoölogy. Of the II2 members of the Sophomore class, 23 were in Group III, and the remainder in Groups I and II; of the 89 in Groups I and II, 23 of the students were not required to elect a course in natural science in the Sophomore year; of the remaining 66, 17 took chemistry, 45 took physics, and 4 took botany; in addition to this the following elections were made:

DEAN'S REPORT		101
Astronomy (1 course elected)		I
Botany (1 course elected)		1
Chemistry (5 courses elected)		15
Civil Engineering (1 course elected)		I
English (4 courses elected)	51	
Deduct for repetition	2	49
French (4 courses elected)		42 I
Geology (1 course elected)	42	1
Deduct for repetition	6	36
Greek (5 courses elected)	30	3
Deduct for repetition	2	28
Italian (1 course elected)		I
Latin (5 courses elected)	47	
Deduct for repetition	2	45
Mathematics (3 courses elected)		24
Music (2 courses elected)		2
Philosophy (1 course elected)		<b>3</b> 8
Physics (2 courses elected)	T 2	0
Political Economy (2 courses elected)  Deduct for repetition	13	11
Psychology (1 course elected)	-	14
Rhetoric (3 courses elected)		23
Spanish (1 course elected)		6
		., ,
Sophomores in Group III have four hours o	prescr	ibed
study in history and rhetoric, and twelve hours	of elec	tive
courses; by the twenty-three students in this	Group	tne
following elections were made:		
Botany (1 course elected)		3
Chemistry (r course elected)		3
English (4 courses elected)	23	
Deduct for repetition	4	19
French (4 courses elected)		15
Geology (1 course elected)		2
German (5 courses elected)		I 2
Greek (1 course elected)		I
History (2 courses elected)	3	2
Deduct for repetition	1	2

Italian (1 course elected)		3
Latin (1 course elected)		12
Mathematics (3 courses elected)		7
Mechanics (1 course elected)		1
Mineralogy (1 course elected)		2
Music (3 courses elected)		3
Philosophy (1 course elected)		4
Physics (1 course elected)		2
Political Econony (2 courses elected)	4	
Deduct for repetition	I	3
Psychology (r course elected)		7
Rhetoric (3 courses elected)	8	
Deduct for repetition	3	5
Spanish (1 course elected)		2

Of the fifteen hours a week required of the Junior class, three hours are given to prescribed studies in psychology and political economy. The remaining twelve hours are given to elective courses.

The following table indicates numerically the elections made among the courses open to Juniors:

Astronomy (1 course elected)		3
Botany (3 courses elected)	3	
Deduct for repetition	1	2
Chemistry (5 courses elected)	23	
Deduct for repetition	I	22
Civil Engineering (2 courses elected)		2
Education (2 courses elected)		5
English (7 courses elected)	102	
Deduct for repetition	33	69
French (7 courses elected)		23
Geology (I course elected)		3
German (10 courses elected)	30	
Deduct for repetition	6	24
Greek (7 courses elected)	23	
Deduct for repetition	6	17
History (7 courses elected)	53	
Deduct for repetition	9	44
Indo-Iranian (1 course elected)		1

DEAN'S REPORT		1	05
Italian (1 course elected)			I
Latin (7 courses elected)	29		
Deduct for repetition	4		25
Mathematics (4 courses elected)	9		
Deduct for repetition	3		6
Mechanical Engineering (3 courses elected)			6
Mechanics (1 course elected)			I
Mineralogy (1 course elected)			I
Music (6 courses elected)	ΙI		
Deduct for repetition	7		4
Philosophy (3 courses elected)		-	15
Physics (3 courses elected)			ΙI
Political Economy (2 courses elected)			15
Psychology (3 courses elected)			13
Rhetoric (6 courses elected)	57		
Deduct for repetition	S		49
Semitic (1 course elected)			I
Spanish (2 courses elected)			15
Zoölogy (2 courses elected)			9

The studies of the Senior year are wholly elective, and cover a wide range. In addition to courses offered in philosophy, philology, and letters, in pure science, in history and political science, the first-year courses in the Schools of Applied Science, Medicine, and Law are open to members of the Senior class who became students of the College not later than the beginning of their Junior year, and such as may desire to do so can prepare themselves for advanced standing in those schools by electing these first-year courses, as a whole or in part, and counting them for the degree of Bachelor of Arts.

The elections made by members of the Senior class are as in the following statement:

# In Philosophy, Philology, and Letters:

Anthropology (1 course elected)		3
Education (10 courses elected)	35	
Deduct for repetition	18	17

English (a course cleated)	6.	
English (9 courses elected)	69	. 0
Deduct for repetition	2 I	48
French (6 courses elected)	9	0
Deduct for repetition	_ I	8
German (9 courses elected)	20	0
Deduct for repetition	2	18
Greek (7 courses elected)	22	
Deduct for repetition	I	21
Indo-Iranian (4 courses elected)	4	
Deduct for repetition	2	2
Italian (3 courses elected)	3	
Deduct for repetition	I	2
Latin (9 courses elected)	2 I	
Deduct for repetition	I	20
Literature (2 courses elected)		17
Music (4 courses elected)	I 2	
Deduct for repetition	4	8
Philosophy (6 courses elected)	31	
Deduct for repetition	4	27
Psychology (4 courses elected)		10
Rhetoric (6 courses elected)	35	
Deduct for repetition	4	31
Romance Philology (1 course elected)	•	1
Semitic (4 courses elected)	9	
Deduct for repetition	1	8
Spanish (2 courses elected)	•	5
Science of Language (1 course elected)		3
, , , , , , , , , , , , , , , , , , ,		3
In Pure Science:		
Astronomy (1 course elected)		10
Botany (1 course elected)		3
Chemistry (6 courses elected)	11	J
Deduct for repetition	4	7
Geology (1 course elected)	4	-
Mathematics (3 courses elected)		7 6
Mechanics (2 courses elected)		
Physics (3 courses elected)		5
,	10	
Deduct for repetition	I	9
Zoölogy (5 courses elected)	14	
Deduct for repetition	1	10

In History and Political Science:

3

### 

Sociology 15 (1 course elected)	Ü

# In the School of Applied Science:

Architecture (2 courses elected)	2
Mechanical Engineering (1 course elected)	I

# In the School of Medicine:

The full first-year course equivalent to	fifteen hours
a week	

### In the School of Law:

The	full	first-year	course	equivalent	to	fourteen	
1	hours	a week					17

There are two prizes for bestowal upon members of the graduating class: The Prize of the Alumni Association and the Chanler Historical Prize.

The three students nominated by the Faculty and submitted to the Senior class as candidates for the Alumni Prize of \$50, given annually by the Association of the Alumni to "the most faithful and deserving students of the graduating class," were Charles Jones Ogden, Henry Starr Giddings, and Harwood Hoadley; and Henry Starr Giddings was chosen by the class to receive the prize.

The Chanler Historical Prize, consisting of the income of a fund of \$1000 bequeathed by J. Winthrop Chanler, of the Class of 1847, and given annually to that member of the graduating class who shall be the author of the best original manuscript essay in English prose on the history of civil government in America, or some other historical subject assigned by the Faculty, was awarded at Commencement to

Simeon Strunsky for an essay upon "The Part Played by Winfield Scott in American History."

The whole number of applicants for admission, who were examined at the College in the week ending June 23, 1900, was 202, distributed as follows:

Preliminary: those who take part of their examina- tion and are candidates for the class entering in	
October, 1901	90
Final: those who took the preliminary examination	
a year ago and are candidates for the class enter-	
ing in October, 1900	54
Full: those who take the entire examination at	•
once and are candidates for the class entering in	
October, 1900	55
Special Students	3
•	
Total	202

The total number of applicants will be increased when the reports of examinations held at a distance from the College are received.

Five scholarships of the annual value of one hundred and fifty dollars each during the College course are open for competition to candidates for admission to the Freshman class who are examined at the College in June and pass complete entrance examinations in all subjects.

The Alumni competitive scholarship, open to all candidates. The papers of the candidates who pass a satisfactory examination are considered by the Committee on Admissions, and the one whose papers as a whole are entitled to the highest rank is awarded the scholarship. At the recent examinations, this scholarship was awarded to Oscar Rempel Houston, from the Brooklyn Polytechnic Institute; general average 91.7 per cent. of a possible maximum.

A Hewitt or Harper Scholarship, open for competition to graduates of the New York City High Schools. At the recent examinations, a Harper Scholarship was awarded to J. Cuthbert Sweeny, from the Boys' High School of the Borough of Brooklyn; general average 88.9 per cent.

Three Brooklyn scholarships open for competition to candidates who are residents of Brooklyn, N. Y., and have received their training in either the public or the private schools of that borough. The papers of the qualified competitors who pass a satisfactory examination are considered by the Committee on Admissions, and the three candidates whose papers as a whole are entitled to the highest rank are awarded the scholarships. At the recent examinations these scholarships were awarded to: Maxwell Francis Lawton, from the Adelphi Academy of Brooklyn, general average, 80.5 per cent.; Paul Gerhard Gravenhorst, from the Brooklyn Polytechnic Institute, general average 80.4 per cent.; Edward Isenberger, from the Boys' High School of Brooklyn, general average 79.7 per cent.

A year ago, the mode of giving pecuniary aid to students was changed by substituting a system of scholarships for free or reduced tuition. So far as a year's experience justifies an opinion, I think the substituted scheme works more favorably than that which it replaced.

Exemption from fees to presumably needy students who apply for it, is open to serious objections on many accounts: it is likely to be abused, it tends to belittle the worth of the education obtained, it fosters a spirit of dependence in the beneficiary and so operates to diminish his self-respect, and, in a sense, "pauperizes the intellectual classes." A remedy at once practical and wise is difficult to devise. That referred to and applied here is an attempt which promises to amend at least some of the infelicities of the former method. There are in all, open to College students, seventy-two scholarships. Of these, twenty are competitive scholarships, twenty-one are endowed scholarships, twenty Benefactor Scholarships, ten Faculty Scholarships, and one Beck Scholarship. Of the competitive scholarships five are competed for annually at the beginning of the College course, and when once awarded, are each retained throughout by the successful competitor unless his scholarship should become unsatisfactory. Of the endowed scholarships thirteen are open to Freshmen only and are awarded, so far as practicable, to those students who are in need and who give promise of distinction in study; and eight are awarded, two in each class, on the nomination of the Society which founded them, the Society for Promoting Religion and Learning in the State of New York. The Benefactor Scholarships are distributed among students who have been, for at least a year, members of the College, and are awarded on the record made by the candidate during the year preceding his application and whose need is made apparent. They are held for one year only, though, of course, re-appointments may be made. The Faculty Scholarships and the Beck Scholarship may be assigned to students in any class of the College; they are also awarded annually and, so far as practicable, on grounds of acquirement, promise, and demonstrated necessity. Administered in this way the scholarships, except in a few instances where they are bestowed on account of some special claim other than high academic standing, are intended to be, and are regarded as, honors. The same amount of assistance as before is rendered to the student body, but it is so distributed as to encourage high standing in scholarship, which was not the case with the granting of free tuition.

It will be seen that if scholarships were the only avenue through which a student could have distinction in standing officially recognized and published this scheme would be very unfair to students who were not in pecuniary need. There has therefore been established a system of honors which are conferred upon students without application and wholly upon their record. Honors are of two grades, "Highest General Honors" and "General Honors"; "Highest General Honors" are awarded to students whose work in a previous year entitles them to high academic distinction, and "General Honors" to students of marked excellence, but who have not attained to "Highest General Honors."

It would seem as if the two systems together provided fully and equitably for recognition of distinction in study to every one worthy of it, and gave pecuniary aid to those who really needed it and who promised to do credit to themselves and honor to the College.

I am happy to say that the steady increase in number of students, noted in previous reports, continues. The removal to Morningside Heights has proved of distinct advantage to the College, in constantly enlarging the attendance, in multiplying educational opportunities, and in cultivating in the students a stronger attachment to their Alma Mater by reason of their freer, fuller, more intimate, more attractive, and inspiring academic life.

A change in the statement of the requirements for admission, recently made and now in effect, will probably operate to accelerate the increase in numbers. The new form of statement is primarily intended to meet a difficulty that has for some time been apparent, and which, since the opening of public high schools in New York City, has become somewhat serious. A considerable number of students, particularly those in the high schools, do not, till late in their course, form a desire to enter college. They are then unable to gratify their desire, because they are unprepared in some of the prescribed subjects, and are not permitted to offer as equivalents others in which they are proficient. The difficulty is, generally, in the requirement of Latin. The re-statement referred to, while not diminishing the amount of preliminary preparation requisite, is so made as not to necessitate the offering of Latin for entrance. Greek was eliminated as an entrance requirement three years ago. Of course either or both of the classical languages may still be offered, but there is a distinct difference in the attitude of the College to the two languages. When Greek was eliminated from the studies prescribed for admission, it was eliminated also from those prescribed for graduation. This is not the case with Latin, which, if not offered for entrance, must be taken for three consecutive years after entrance. So that, without changing the requirements for the degree of Bachelor of Arts, the advantages of the College are made available to many who would otherwise be excluded; and this will, doubtless, induce a considerable number of young

men to take a collegiate course, who would otherwise go directly from the high school to the study of a profession.

In this connection, I may refer to the new regulations affecting the degree of Bachelor of Arts. Heretofore, fifteen hours a week were required of the Freshman class, sixteen hours a week of the Sophomore class, and fifteen hours each of the Junior and Senior classes. While the obligatory studies - those which every student must take who is granted a degree - remain unchanged, the regulations have been amended so as to read as follows: "Candidates for the degree of Bachelor of Arts are required to present a course making a total of sixty points, each point having the value of a subject pursued one hour a week for one academic year, except that laboratory or drawingacademy hours shall be counted for one half the number of hours actually occupied. Not less than twelve, nor more than eighteen, points may be presented in any one year without the consent of the Dean. No one-hour course, unless taken in connection with and as a supplement to a cognate course, will be allowed. To the end of his Junior year, a student must always pursue not fewer than three courses having a value of at least three points each."

One advantage of the new method lies in the permission to any student to present not more than twelve points in any one year. This will enable him, should he be not strong in health or not thoroughly well prepared, to take, without reproach, five years to finish the entire college course. Hitherto a student who did not make his degree in four years has been somewhat discredited. Another advantage is that, if a man so choose and is sufficiently able, physically and mentally, he can, by taking eighteen points in each of his earlier college years, so lighten the burden of the later years as to give him leisure to devote much more time than is now feasible to thorough study of fewer subjects, to reflection, and to reading in the library.

It is not unlikely that the changes and improvements referred to, taken with the exceptional advantages incident to the connection of the College with the great University which has grown out of it, and its location in a metropolitan city which is of itself "a sort of necessary university," will attract a rapidly increasing number of students. I may, therefore, be pardoned for calling renewed and earnest attention to the very great desirableness, not to say pressing obligation, of providing suitable dormitories and a proper College Hall. With these additions—possibly without them but not so readily—the College would, I believe, soon take in numbers, as it has in educational opportunity and efficiency, a very prominent, perhaps the leading, place among the colleges of the country.

Respectfully,

J. H. VAN AMRINGE,

Dean.

June 28, 1900.

### OFFICERS OF INSTRUCTION

Professors	2
Adjunct Professors	
Instructors	
Tutors	1
Lecturers	
Assistants	

# SCHOOL OF LAW

### REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

As Dean of the School of Law, I have the honor to submit the following report for the academic year ending June 30, 1900.

I would respectfully renew the recommendation made by me in my last report that the number of scholarships open to members of the first-year, or entering class, be increased. Only four such scholarships are now offered. This number is too limited to warrant any earnest effort to call the attention of college graduates to the tender made by the University to intending law students. I am constrained to think that this is a mistaken policy, and I hope that the Trustees may be able during the coming year to authorize an increase of at least six Faculty Scholarships, making a total of ten Faculty Scholarships open to members of the several classes.

The following table gives the subjects in which candidates for the degree of Bachelor of Laws were examined at the close of the year, the names of the instructors, the number of lectures given per week in each subject, and the number of students examined therein:

Instructors.	Courses.	Hours per Week.	Number of Students.
	First Year.		
Mr. StoneCommo		<b>V</b> .	
and	Procedure	2*	147
Mr. TerryContract Prof. HoustonCrimina	ıl Law and Pro-	4	145
Prof. Keener { Elem der Equir	ents of Jurispru-	2	148
Prof. Keener der	nce		144
( Equi	ty	2	152
Prof. KirchweyReal an	d Personal Prop-		3
erty		2	150
Prof. BurdickTorts		2	147
Mr. Stone Domest	ic Relations and		
Law	of Persons	2**	147
	Second Year.		
Prof. CanfieldAgency	·	2	108
Prof. HoustonBailmer Prof. BurgessCompar	nts	2	102
tion	al Law	-4	
Prof. KirchweyQuasi-0	Il Law	3†	4
Prof Vonor Fauity	Jonitacis	2	108
Prof. KeenerEquity. Mr. StoneEquity	Pleading and Pro-	2	112
cedu	ıre	2**	5
Mr. StoneInsurar	ice	2**	5
Prof. BurdickNegotia Prof. KirchweyReal ar	able Paper  nd Personal Prop-	2	109
		2	112
		2	111
Prof. GoodnowAdmini		2	7
	Third Year.		
Mr. StoneCode P	leading and Prac-		
tice	·····	2	25
ticc.		2	25

<sup>\*</sup> For half the year.

<sup>\*\*</sup> For half the year. The courses on Equity Pleading and Insurance are taken largely as optionals.

<sup>†</sup> The record of the School of Political Science will show the number of law students taking this course as an optional or for degrees other than the degree of LL.B.

Instructors.	Courses.	Hours per Week.	Number of Students.
Prof. CanfieldDoct	rines Peculiar to		
N	ew York Law	2*	I
Prof. Keener Equi	ty	2	96
Prof. CanfieldEvid	ence	2	93
Prof. MooreInter	national Law	2	12†
Prof. BurdickPartr		2	89
Prof. KeenerCorp	orations	2	93
Prof. Kirchwey Real	and Personal Prop-		
er	ty	2	72
Profs. Burdick and			
KirchweySuret	yship and Mortgage	2	81
Prof. HoustonWills	and Administra-		
tic	on	2	88
Prof. GoodnowLaw	of Taxation	I	2 🕇

During the current academic year three hundred and eighty students were registered in the School of Law, exclusive of students registered primarily under other faculties, divided into classes or groups as follows:

Third Year	99
Second Year	113
First Year	167
Specials	I
Total	380

The following is the result of the examination of candidates for a degree held at the close of the year:

Of the ninety-six members of the third-year class who presented themselves for examination, twelve failed in one or more subjects, and therefore failed to receive the degree.

Annexed hereto will be found tables showing the percentage of college graduates in each class and in the School as a whole, and the parentage of college degrees.

Respectfully submitted,

WILLIAM A. KEENER,

Dean.

<sup>\*</sup> For half the year. This course is taken largely as an optional.

<sup>†</sup>The record of the School of Political Science will show the number of law students taking this course as an optional or for degrees other than the degree of LL.B.

TOTAL NUMBER OF COLLEGE GRADUATES IN SCHOOL.	Percentage of Graduates of Other Colleges.	86.86
	Number of Graduates of Other Colleges.	205
	Percentage of Columbia College Graduates.	13.14
	Number of Columbia College Graduates.	31
TOTA GR.	Total Number of College Graduates in School.	236
ABER OL.	Percentage of College Graduates.	236 62.10 236
TOTAL NUMBER IN SCHOOL.	Total Number of College Graduates.	236
TOTA	Total Number of Students in School.	380
R SPECIAL STUDENTS.	College Graduates.	0
	Number of Students.	н
	Percentage of College Graduates.	103 61.68
FIRST-YEAR CLASS.	College Graduates.	103
FIR	Number of Students.	191
EAR	Percentage of College Graduates.	64.60
SECOND-YEAR CLASS.	College Graduates.	73
SECO	Number of Students.	113
THED-YEAR CLASS.	Percentage of College Graduates.	60 60.90 113
	College Graduates.	3
TH	Number of Students.	66

# PARENTAGE OF DEGREES

Ammerst Conege	7
Beloit College	]
Bethel College	1
Bowdoin College	1
Brown University	2
Bucknell University	2
Canisius College	1
Carleton College	1
Central University, Ky	1
Colby University, Me	]
Columbia College	31
Columbia College	]
Curry University	1
De Pauw University	1
Dickinson College	)
Earlham College	1
Emory College	]
Eureka College	1
Georgetown University	1
Guilford College	1
Harvard University	18
Hobart College	3
Johns Hopkins University	3
Kenyon College	2
Knox College	3
Lafayette College	2
Lafayette College	4
McGill University, Canada	1
Marietta College	Ι
Mercer University	1
New York, College of the City of	33
New York University	3
Notre Dame University	I
Oberlin College	4
Oxford University, England	1
Pennsylvania College	1
Princeton University	5
Puerto Rico Institute Provincial	I
Richmond College	1
Roanoke College	Ι
Rutgers College	2
St. Francis Xavier College	9
St. John's College, Md	I
Santa Clara College	I
Seton Hall College	I
Trinity College, Conn	I
Union College	τ

University of California	2
University of Colorado	I
University of Georgia	2
University of Indiana	I
University of Kansas	I
University of Michigan	3
University of Missouri	2
University of Nebraska	2
University of North Dakota	I
University of Ohio	I
University of Oregon	1
University of Pennsylvania	I
University of Rochester	3
University of Virginia	2
U. S. Naval Academy	I
Vanderbilt University	2
Virginia Military Institute	I
Wabash College	2
Western Reserve University	1
Williams College	16
Yale University	27
-	
68 Colleges and Universities. Total Graduates	236

# SCHOOL OF MEDICINE

# COLLEGE OF PHYSICIANS AND SURGEONS

# REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

First-year students

### SIR:

I have the honor to submit the following report of the Medical School. There have been 801 students in attendance upon the lectures and working in the various laboratories, distributed as follows:

	inst-year students	229
Se	econd-year students	158
T	hird-year students	157
$\mathbf{F}_{0}$	ourth-year students	172
Sı	pecial students	85
	· · · · · · · · · · · · · · · · · · ·	
		801
Of 1	these 315 held degrees as follows:	
A	.B	182
A	.B., A.M	7
	.M	2
	.B., M.D	6
	.B., D.V.S	I
	.S.,	54
	.P	2
	L	3
	S., M.D	ī
	S., M.S., Ph.D	т
	Agr	T
	.E., Ph.G	ī
	.Ph	17
	Ph	II
	har.D.	I
	I.D.	_
		23
	L.B	_
V	.S	I
	-	

Of the above, 274 were candidates for the degree of M.D. and 41 were special students. Fourteen held academic degrees from Columbia University; 12 were graduates of the College of Physicians and Surgeons; 7 Seniors from Columbia University received instruction for the first year.

Of 716 candidates for the degree of M.D. 274 held academic or other degrees—14 from Columbia, and 260 from other colleges. Of 85 special students 12 held degrees from Columbia and 29 from other colleges. Of 165 graduating at the Commencement in June, 91 received hospital appointments and 5 received the appointment of alternates. These appointments were made as the result of competitive examination in the following hospitals, making an extremely creditable showing for the class of 1900:

Bellevue	Hospita	al ist di	1V1S1O	n							. 4
"	"	2 d	"			. <b></b> .					. –
"	"	4th	"								. г
Mount Si	nai Ho	spital									. 6
Methodis	t Episc	opal H	ospit	al (Bl	yn.)						. 2
St. Vince	nt's H	ospital .									. 2
St. Luke'	s Hosp	ital									. 8
Presbyter	ian Ho	spital									. 5
German l	Hospita	1				• • • • •					. 4
St. John's	Hospi	tal (Bly	n.)								. 2
Norwegia	n Hos	pital (E	3lyn.)								. I
New Yor	k Hosp	ital									. 3
Roosevel	t Hospi	tal									. 8
J. Hood	Wright	Hospit	al								. 2
Harlem 1	Hospita	1									. і
Gouverne	eur Ho	spital									. і
S. R. Sm	ith Infi	rmary a	and S	S. I. I	losp	ital					. 3
N. Y. Po	st-Grac	l. Med.	Sch.	Hosp	ital.			• • • •			. 3
Christ He	ospital (	Jersey	City)								. I
General 1	Memori	al Hos	pital.								. I
City Hos	pital (E	lackwe	ll's Is	land)							. 8
Colored 1	Hospita	ıl									. 2
Beth Isra	el Hos	pital									. 2
Metropol	itan He	ospital.	Black	kwell'	s Isl	and (	Hom	œopa	thic	)	. г

Paterson (N. J.) General Hospital	1
French Hospital	2
St. Joseph's Hospital (Yonkers)	1
St. Mark's Hospital	1
Fordham Hospital (Dept. of Pub. Char.)	I
St. Mary's Hospital (Blyn.)	3
36 77 1:1/0 1 011 36 )	1
Columbus Hospital (City)	2
Elizabeth General Hospital (N. J.)	1
St. Catherine's Hospital (Blyn.)	3
Lebanon Hospital (City)	1
Binghamton State Hospital	I
Jersey City Hospital and Dispensary	1
Hospital for Ruptured and Crippled	1

#### ANATOMY

Several changes in the educational staff of the Department have taken place during the academic year. Owing to the increased scope of the surgical instruction at the Roosevelt Hospital Drs. Jas. A. Blake and Geo. E. Brewer have been obliged to sever their connection with the Anatomical Department as Assistant Demonstrators of Anatomy in charge of part of the first-year section teaching. The Department deeply regrets the necessity of their retirement from the anatomical staff and desires to express the appreciation which their valuable and faithful services merit. Drs. Walton Martin and H. D. Collins have been promoted respectively to the positions left vacant by Drs. Blake's and Brewer's resignation. Drs. V. C. Pedersen and A. Van S. Lambert have been appointed Assistant Demonstrators of Anatomy.

The leave of absence of Dr. Geo. W. Crary has been extended for one year and Dr. H. E. Hale has been appointed Acting Assistant Demonstrator of Anatomy during the period of his leave.

The regular work of the Department in the medical course, as announced in the Catalogue, was successfully carried out. For a statement of the graduate and research

No of Students

work, reference is asked to the report of the Department to the Faculty of Pure Science.

#### PHYSIOLOGY

Throughout the year instruction has been given by Professors J. G. Curtis and Frederic S. Lee and by Dr. C. C. Stewart. At the close of the year's work Dr. Stewart resigned his tutorship. In place of this office the Trustees, at the request of the Faculty of Medicine, have created two Assistant Demonstratorships, which have happily been filled by the appointment of Nathan Williams Green, A.M., M.D. (Columbia '98), and Robert Allyn Budington, A.M. The appointment of these two men is of significance in that it marks their return, as instructors, to the Department in which their physiological training was obtained.

The following is a summary of the statistics of the year:

		with Can	
	Course.		
I.	General Physiology8	Ph.D. A.M. Special	5 2 I
II.	Laboratory work of Course 18	Ph.D. A.M. Special	5 2 1
TTT	Physiology of Man and Higher Vertebrates	MD	287
IV.	Research8.	A.M. Special	3 5
	Total Names repeated		411
	Corrected total		403

The researches carried on in the Department by the members of its staff and other workers were on the following subjects:

The history of the discovery of the nervous system.

The cause of muscle fatigue.

The action of phlorhizin on muscle.

The survival of mammalian muscle.

The phototaxis of Stentor cœruleus.

The functions of the organs of the lateral line in fishes.

Color changes in the frog.

The physiology of mammalian smooth muscle.

The causes of death by electricity.

The physiological actions of electric currents of high frequency and high potential.

The absorption of proteids.

The physiological action of mucin.

The characters of the blood of animals deprived of their suprarenal capsules.

The therapeutic action of the suprarenal capsule in diseases of the heart.

The effects of venous infusion.

On the invitation of the Alumni Association of the College of Physicians and Surgeons, Prof. Curtis delivered the biennial course of three "Cartwright Lectures" for 1900 at the N. Y. Academy of Medicine, on April 18th, 24th, and 26th, upon the historical subject of "The Discovery of the Nerves and of their Function." The first lecture dealt with the opinions of the ancient Greeks, before the discovery of the nerves, as to the mode of production of sensation and The remaining two lectures dealt with voluntary motion. the probable time and place of the discovery of the nerves, and with the changes in opinion which were immediately produced by that discovery as to the aforesaid functions. The opinions of the ancients were set forth to a great extent in passages translated into English by the lecturer directly from the ancient texts themselves; many of these translations being the first renderings into any modern language of the passages in question. The lectures will be published, with important additions, during the winter of 1900-1901.

The work of Dr. Cunningham on the causes of death by electricity is of special interest and has attracted wide attention, both in this country and abroad. Dr. Cunningham finds that death from strong electrical currents is due not to

sudden paralysis or death of the central nervous system or the heart, but to the production in the heart muscle of so-called "fibrillar" or irregular contractions. The application of strong condenser discharges and the maintenance for a time of an artificial circulation of blood through the heart are sufficient to bring back coördinate contractions and restore the animal.

The following publications by workers in the Department appeared during the year:

- John G. Curtis, M.D.—The Use of Excised Mammalian Muscles for Purposes of Demonstration. In Proceedings of the American Physiological Society, Yale University, December 27–29, 1899. The American Fournal of Physiology, iii, p. 11.
- Frederic S. Lee, Ph.D.—The International Catalogue of Scientific Literature; Report from Columbia University: N. Physiology. Science, N. S., x, p. 172. Review of "A Class-Book of (Elementary) Practical Physiology" by De Burgh Birch. Science, N. S., x, p. 453. Review of "Elementary Physiology" by B. Moore. Science, N. S., x, p. 453. Lessons in Elementary Physiology, by T. H. Huxley, LL.D., F.R.S., edited for the use of American schools and colleges. New York, The Macmillan Co., pp. xvi and 577. The Survival of Mammalian Muscle after Somatic Death. In Proceedings of the American Physiological Society, Yale University, December 27-29, 1899. The American Fournal of Physiology, iii, p. xxix.
- Colin C. Stewart, Ph.D.—The Relaxation of the Bladder
  Muscles of the Cat. The American Journal of
  Physiology, iii, p. 1.
  Mammalian Smooth Muscle. In Proceedings

of the American Physiological Society, Yale University, December 27–29, 1899. The American Journal of Physiology, iii, p. xxv.

Zöllner's Anorthoscopic Illusion. American Fournal of Physiology, xi, p. 240. (Minor Studies from the Psychological Laboratory of Clark University, No. xvi.)

Recent Neurological Literature; being a review of Barker's "The Nervous System and its Constituent Neurones," together with nine other reviews. *American Journal of Psychology*, xi, p. 430.

(with Allen Cleghorn) The Reaction Time of Inhibition. In Proceedings of the American Physiological Society, Yale University, December 27–29, 1899. The American Fournal of Physiology, iii, p. xxi.

R. H. Cunningham, M.D.—Death by Electricity. *Electrical World and Engineer*, September 22, 1899.

The Cause of Death from Industrial Electrical Currents. New York Medical Journal, vol. lxx, p. 581. Ibid., October 28, 1899, p. 615. Death by Electricity. Electrical World and Engineer, December 30, 1899.

Death by Electricity. *Ibid.*, January 6, 1900. A Durable Form of the Wehnelt Electrolytic Interrupter. *Electrical Review*, N. Y., xxxvi, January 3, 1900.

Death by Electricity. Electrical Engineer, London, xxv, p. 415.

The Physiological Effects of Preparations of the Ductless Glands. *Medical News*, 1900. La Mort par les Courants Électriques Industriels. *Archives d'Électricité Médicale*, 1900.

Isaac Levin, M.D.—Mucinæmia and its rôle in experimental thyroprinia. *Medical Record*, February 3, 1900. Physiological studies on Mucin. Preliminary

Communication. In Proceedings of the American Physiological Society, Yale University, December 27–29, 1899. American Journal of Physiology, iii, p. xxix.

(with P. A. Levene) On the Absorption of Proteids. Archives of Neurology and Psychopathology, ii.

Robert Coleman King, M.D.—Treatment of Scarlatinal Nephritis. Transactions of the New York Academy of Medicine, 1900; abstract in New York Medical Record, April 14, 1900.

In the above list special attention might be called to the revision by Professor Lee of Huxley's well-known text-book. The book was published first in 1866, and has since been in active use for thirty-four years. It has had an unusually powerful influence on scientific instruction. The last edition previous to the first one was brought out by Huxley himself in 1885.

Professors Curtis and Lee have recently revised their articles on "The Mechanics of the Circulation" and "Reproduction" respectively for a second edition of *An American Text-book of Physiology* to be published during the coming summer.

The Department of Physiology has been well represented at the meetings of the various scientific societies. At the annual meeting of the American Physiological Society, held at Yale University, December 27–29, 1899, four papers emanated from the Department. Professor Curtis spoke on "The Use of Excised Mammalian Muscles for Purposes of Demonstration"; Professor Lee on "The Survival of Mammalian Muscle after Somatic Death"; Dr. Stewart on "Mammalian Smooth Muscle"; and Dr. I. Levin on "Physiological Studies on Mucin." At the special meeting of the same society, held with the Medical Congress in Washington, May 1–3, 1900, Professor Lee spoke on "The Action of Phlorhizin on Muscle." Professor Lee has been chairman of the Biological Section of the New York Academy of

Sciences during the year, and has presented before the section several papers on the researches of the Department.

The mechanic, Mr. John T. Hoyt, has designed, constructed, and installed a new and efficient apparatus for artificial respiration. It is applicable to all varieties of animals used for experiments, and to a wide variety of conditions, being thus superior to the apparatus hitherto used for artificial respiration. It is proving a very valuable aid in the laboratory work.

#### PHYSIOLOGICAL CHEMISTRY

In the Department of Physiological Chemistry instruction has been given by Professor R. H. Chittenden, Dr. William J. Gies, Messrs. Alfred N. Richards, and William D. Cutter. The regular course in physiological chemistry required of all candidates for the degree of M.D. has been taken this year by one hundred and sixty-six students, in two distinct sections. In addition, there have been eleven students pursuing advanced or special courses in physiological chemistry. Of these one was a candidate for the degree of Ph.D.; two were candidates for the M.A. degree; two were graduates of medicine carrying on special work; while the remaining six were occupied with advanced and research work.

The following publications by workers in the Department have appeared during the year:

"A Preliminary Study of the Coagulable Proteids of Connective Tissues." By William J. Gies and A. N. Richards. Proceedings American Physiological Society, December, 1899.

"The Gluco-Proteids of White Fibrous Connective Tissue." By William J. Gies and William D. Cutter. *Ibid*.

"The Preparation of a Mucin-like Substance from Bone." By William J. Gies. *Ibid*.

"The Proportion of Basic Nitrogen yielded by Elastin in Decomposition with Hydrochloric Acid." By R. H. Chittenden and Allan C. Eustis. *Ibid*.

"The Physiological Action of Tellurium Compounds." By William J. Gies and L. D. Mead. *Ibid*.

"The Influence of Protoplasmic Poisons on the Formation of Lymph." By Leon Asher and William J. Gies. *Proceedings American Physiological Society*, December, 1899.

"On Stimulation and Excitability of the Anæmic Brain." By William J. Gies (work done at the Physiological Institute of Bern). Report of the British Medical Association for the Advancement of Science, 1899, p. 897.

"Notes on the Chemical Composition of the Cocoanut." By J. E. Kirkwood and William J. Gies. *Science*, June 15, 1900.

"The Position that Universities should Take in Regard to Investigation." By R. H. Chittenden. Science, January 12, 1900.

Messrs. A. N. Richards and A. C. Eustis have made an interesting study of the chemical composition of a knife-grinder's lung, reported on by Dr. Hodenpyl in the *Medical Record*, vol. lvi, p. 943.

The increasing demand from graduate students for opportunities to work in the laboratory of physiological chemistry has necessitated some increase of laboratory space. This has now been provided for, with the consent of the President, by transforming the large study belonging to the Department into a laboratory, and taking one of the adjacent janitor's rooms for a study. In this way the facilities of the Department for research work will be considerably increased.

#### DEPARTMENT OF PATHOLOGY

In the Department of Pathology, in which are grouped Pathology, Clinical Microscopy, Bacteriology, and Normal Histology, the undergraduate instruction, the advanced courses, and the work of research have been carried on hand in hand as usual.

The educational staff of the Department has been considerably changed since the last report, owing to the retirement of Dr. T. M. Cheesman, the acceptance by Dr. James Ewing of the chair of pathology, and by Dr. Charles Norris of an instructorship in the Cornell Medical School. Dr.

Philip Hanson Hiss has conducted most successfully the section in Bacteriology, while Dr. F. C. Wood has carried forward the development of the courses in Clinical Microscopy. Dr. Augustus J. Lartigau, who came to us from the Albany Medical College, has rendered admirable service in Pathology and Bacteriology, while Drs. Wadsworth Wilcox, and Long have sustained for the first time the arduous rôles of Assistants in the undergraduate laboratory teaching.

Instruction in Pathology has been given to the third-year class of one hundred and fifty men, in two sections, five days in each week throughout the year; while three special workers in the class and thirteen men aside from the members of our instructing force have been engaged in special and advanced studies and research in Pathology and Medical Bacteriology. The class in Clinical Microscopy received laboratory instruction in four sections, and consisted of one hundred and seventy-two students. The class in Bacteriology, also taught in four sections, numbered one hundred and fifty-two. The advanced course in Bacteriology was taken by three men, one of whom was a candidate for a higher degree. The first-year class in Normal Histology, taught in two sections, numbered two hundred and seven; while the second-year class numbered one hundred and fifty-five.

Thus in the various divisions of the Department of Pathology, practical undergraduate laboratory instruction has been given in classes to eight hundred and thirty-six men, while nineteen men have pursued special advanced studies and research.

The accession book of the Department shows that 1767 specimens have been received from various sources. Most of these have been examined and formally reported upon, and either used for temporary instruction or carried into the permanent collections.

The departmental library has been maintained this year, as usual, largely by private subscription of the workers in the Department, but has received a contribution to its current expenses from Dr. George C. Wheelock. This library

is essential to success in all phases of the work of the Department, and, as there is no medical library in the University, its maintenance by private subscription of the workers is a necessity under the present conditions. But it is a serious burden upon those who, often at great sacrifice, are devoting their lives to scientific pursuits.

The following are the more important papers published by workers in this Department since the last report:

- Elmer W. Firth, C.E., A.M.—Micro-Organisms in the Air of
  Public Buildings and Conveyances, Due to
  Improper Methods of Cleaning.
  (Submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy
  in the Faculty of Pure Science, 1899.)
- Eugene Hodenpyl, M.D.—Miliary Tuberculosis of the Pleura without Other Tuberculous Involvement of the Lung. *Medical Record*, June 24, 1899.
- Rowland Godfrey Freeman, M.D.—A Study of Lesions of the Liver in Young Children. *Archives of Pediatrics*, February, 1900.
- T. Mitchell Prudden, M.D.—Progress and Drift in Pathology. *Medical Record*, March 10, 1900.
- S. J. Meltzer, M.D.—An Experimental Contribution to the Knowledge of the Toxicology of Potassium Chlorate. Reprint from the Jacobi Festschrift, 1900.
- Augustus Jerome Lartigau, M.D.—The Bacteriology, Pathology, and Etiology of Tuberculosis. *Twentieth Century Practice*, vol. xx, pp. 1–134. Wm. Wood & Co., 1900.

The Alumni Association Fellows in Pathology, Drs. F. R. Bailey and A. B. Wadsworth, have been engaged in research work, the results of which, together with several papers by others, now nearly completed, or already in the hands of the printers, will presently be published.

#### OBSTETRICS

There has been no change in the teaching force of the Department since the last report.

The plan adopted last year of giving one clinical lecture a week in place of one of the three didactic lectures formerly given, has been followed by Professor Cragin during the current session with evident satisfaction to the students. At the clinics several obstetric operations, including a Cæsarean section, have been performed before the class.

During the past year 191 patients have been delivered by students, and each student has witnessed, on an average, 21 deliveries during his two weeks' residence at the Sloane Maternity.

The instruction to the second-year students by Dr. Tucker, and to the fourth-year students by Dr. Voorhees has been characterized by the usual thoroughness.

### SURGERY

In this Department, a number of important changes have been effected which, it is believed, will be of great advantage to the College.

Professor McBurney and Dr. Alexander B. Johnson having retired from the staff of the Roosevelt Hospital, the Trustees of that Institution appointed Professors Weir and Bull as Surgeons, and Drs. Brewer and Blake as Junior Surgeons. By this arrangement the Professors of Surgery will give their clinical teaching at the Roosevelt, instead of, as heretofore, at the New York Hospital; while Drs. Brewer and Blake will be able to conduct the clinical section teaching.

A further change has been made by the establishment of a series of recitations from text-books, for third- and fourthyear students, under the direction of Dr. Elsworth Eliot, who has been promoted to the position of Demonstrator of Surgery.

The instruction heretofore given at the New York Hospital by Professors Weir and Bull will be given during the next session by Professors Hartley and Markoe.

The course in operative surgery, heretofore open only to undergraduate students, will hereafter be accessible to post-graduates; Dr. Foote has been appointed an Instructor in Surgery at the Vanderbilt Clinic; and Dr. Martin, of the Anatomical Department, has been put in charge of the surgical Division of the Out-Patient Department of the Roosevelt Hospital.

The College now has a very strong position in the Roose-velt Hospital, which, by reason of its proximity, constitutes the natural, if not the best, field for clinical teaching. Professors Delafield, Peabody, Bull, Weir, Tuttle, and Jacobi all give instruction in its wards; Drs. Brewer, Blake, and Martin use its patients for section teaching.

#### LARYNGOLOGY

# Section Teaching

Didactic and demonstrative lectures to the fourth-year students collectively have been given in the amphitheatre of the Vanderbilt Clinic.

These lectures have been attended as follows:

Out of a possible 165 students (the fourth-year class numbering 171, but always minus the six students on duty at the Sloane Maternity Hospital)

Average attendance	1681
Largest number present at any lecture	184
Smallest number present at any lecture	136*

These figures speak for themselves in showing both the interest and regularity in attendance on the part of the class.

The lectures have been fully *illustrated* as occasion or subject demanded, proper material being furnished by the Dispensary Department of the Clinic in abundance (as shown on p. 133).

The extensive teaching apparatus has this session, as in each former one, received some important additions, such as have been shown by experience to be desirable or necessary.

<sup>\*</sup> On account of hospital examinations proceeding at that time.

The *subject and date* of each of these lectures are announced in printed form at the beginning of the session.

Each lecture (with two exceptions) is complete in itself, the subject being commenced, illustrated clinically, and finished within the allotted hour.

All the *minor operations* upon the nose, pharynx, and fauces have been performed in the presence of the class.

The major operations, total or unilateral excisions of the larynx, tracheotomy, laryngotomy, thyrotomy, etc., the class are expected to witness in the Surgical Clinic, Roosevelt Hospital, to which our cases requiring such operations are sent, by order of the Trustees of the Vanderbilt Clinic.

### Practical and Clinical Instruction

Eight courses of practical instruction have been given, the number of lessons in each varying from 8 to 12, and the number of students from 20 to 23.

Total number of students......172 in the sections Average attendance.......170 $\frac{5}{8}$  at the sections

SECTION.	Number of Students.	Number of Lessons.	Absences.
С	22	8	9
D	23	II	14
E	21	10	9
F	20	10	10
G	21	12	4
H	21	II	2
A	22	9	28 <b>*</b> 33 <b>*</b>
В	22	9	33*

The Class of 1899–1900 has shown an unusual degree of interest in and adaptability for practical work.

The *changes* that each year's experience suggests have been made, as usual, this session, and the practical worth of the course, it is believed, materially increased.

The work actually done by each section and *individually* by each student is shown by the following table:

<sup>\*</sup> Hospital examinations proceeding.

SECTION.	Normal Cases Examined.	Abnormal Cases Examined.	Special Demonstration by Instructor.
С	169	76	51
D	206	137	75
E	218	145	57
F	243	143	97
G	310	197	118
H	287	1Šo	117
A	223	125	98
В	208	66	66

Thus 1864 normal cases and 1069 pathological cases have been examined by the students while under instruction, and 679 special cases, illustrating some question of general diagnosis, differential or bacteriological diagnosis, surgical or medical indication for treatment, etc., have been personally demonstrated by the instructor to the students of the eight sections.

Each student has, therefore, had a practical experience of some 451 examinations in normal and abnormal cases, as follows:

#### AVERAGE.

Personally examined 233 normal cases.

Personally examined 1335 pathological cases.

Had demonstrated  $84\frac{7}{8}$  pathological cases.

45 I

# Clinical Material Available for the Purposes of Instruction

During the College year, October 1st to June 1st, 6463 visits were made by patients with diseases of the throat and nose to the Clinic, and 2752 new patients were registered upon its books.

All of this material that was suitable has been utilized in the practical instrumental instruction courses or for clinical demonstrations at the lectures.

### Practical Courses

The work of practical instruction progresses satisfactorily under the direction of Dr. W. K. Simpson, Chief of the Clinic.

The Department requires the services of twelve assistants. Two new appointments have been made since my last report (1899).

Dr. Samuel Wood Thurber, Class of 1894.

Dr. Paul F. Sondern, Class of 1896.

# Certificates

The certificates of appointment as Clinical Assistant in the Vanderbilt Clinic recently authorized by its Board of Trustees have been much valued by the recent appointees.

They will do much to regularize and dignify the appointments of the future.

### OPHTHALMOLOGY

- 1. A didactic demonstrative lecture, with presentation of patients, has been delivered every Tuesday from 2-3 P.M. The attendance has been numerically satisfactory and appreciative. It has been the aim to give clear and impressive pictures of the diagnosis and treatment of the common and important eye diseases which come before the general practitioner, passing more rapidly over the anatomo-pathological and bacteriological conditions (assisted by microscopic and macroscopic demonstrations given by Dr. W. A. Holden, Clinical Assistant, at the beginning or the end of the hour), and over the optics and motility of the visual organ in short, to present a system of ophthalmology in which the theoretical parts were roughly sketched, and the practical parts elaborately drawn.
- 2. Physical Examination of the Eye (Ophthalmoscopy, etc.) was taught in sections by Instructor Dr. C. H. May, each student receiving six lessons to handle the ophthalmoscope and recognize the normal and pathological conditions of the interior of the eye.
- 3. Functional Examination. (Acuteness and Field of Vision, Color Perception, Accommodation and Refraction, Motility, Strabismus, Paralysis, Insufficiency), six lessons to each student by Instructor Dr. J. H. Claiborne.

4. Hospital Clinics, every Wednesday from 2-3.40 P.M., at the N. Y. Ophthalmic and Aural Institute, 44 and 46 East 12th Street, by invitation of the Professor in sections of 20, throughout the year. They consisted in examination, analysis, and treatment of selected cases, performing operations, and going through the wards, to teach the young physician how eye patients have to be handled in close observation. This course is, in the opinion of the Professor, an essential supplement to the preceding courses. application of what the student has learned in the others. There he comes in touch with the patient much more closely and extensively than it is possible in the Vanderbilt Clinic, where, for instance, the performance of more important operations would not be justifiable, even if the time should permit. It is a matter for regret that these clinics have not vet been added to the list of prescribed studies.

#### DISEASES OF CHILDREN

Instruction in the diseases of children has been given according to the methods established for years, with the additional facilities afforded since February 1, 1800, by the establishment, through the efforts of Columbia University, of the "Jacobi Ward" for medical diseases of children in Roosevelt Hospital. The Wednesday clinics were attended by large classes, and the two weekly bedside clinics in the hospital by the full number (15) of a section. Students prevented by other duties from attending in this appointed order would often regret the privilege of coming with another section, and some would ask permission to attend more frequently than the rules governing the section seemed to allow. All this proves the growing appreciation, on the part of our students, of the opportunities offered them. method of illustrating the diseases of children by their etiological relations to physiology and pathology has greatly interested the students.

The practical exercises have been conducted four times a week for classes of 17 men each by the Chief of Clinic, Dr. Francis Huber.

The courses of didactic lectures on the Practice of Medicine, Materia Medica, and Diseases of the Nervous System have been continued without interruption during the year by Professors Delafield, Peabody, and Starr. Clinical instruction in medicine has been given at the Roosevelt Hospital by Professors Delafield and Peabody, and at the New York Hospital by Professor Peabody and Dr. A. Brayton Ball.

Section teaching has been given daily in all the special departments of Medicine and Surgery at the Vanderbilt Clinic and at the Roosevelt and Bellevue Hospitals. I am happy to report that the scholarship of our students, as shown by their examinations, is continually improving, and the four years' course, now that we have adjusted our work to the lengthened term, enables our students to devote more time to the continually expanding field of clinical instruction, and thus at graduation to enter upon their life-work with a far better preparation than in former years.

Respectfully,

J. W. McLane,

Dean.

SCHOOL OF MINES SCHOOL OF CHEMISTRY SCHOOL OF ENGINEERING SCHOOL OF ARCHITECTURE

### REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

I have the honor to present the following report of the thirty-sixth annual session of the Schools under the Faculty of Applied Science, just closed.

During the year, four hundred and ninety-one students have been in attendance on the exercises of the Schools under this Faculty, distributed as follows:

# Undergraduate Courses

Fourth Class. Third Class. Second Class. First Class.	60 126 116 135
	437
University Courses	
For the Degree of Master of Arts	1 3
	4-
Carried forward.	441

### Elective Courses

	Brought forward	44 I
		50
(17 of wh	nom pursued Architectural Courses.)	
Grand	total	491
Students	primarily registered under this Faculty	, 491

The regular undergraduate students have pursued the different courses in the Schools under the Faculty of Applied Science, as follows:

	First Class.	Second Class.	Third Class.	Fourth Class.	Total.
SCHOOL OF MINES:					
Mining Engineering	29	28	16	17	90
Metallurgy	2	0	0	0	2
SCHOOL OF CHEMISTRY	14	5	11	4	34
SCHOOL OF ENGINEERING:					
Civil Engineering	2 I	16	24	7	68
Electrical Engineering	28	30	35	23	116
Mechanical Engineering	27	19	2 I	0	67
School of Architecture	14	18	19	9	60
	135	116	126	60	437

Of the above-mentioned students the following number received scholarships:

First Class
Third Class
41

The following table shows the number of students who have attended the School of Mines and associated Schools since their foundation:

	M.E.	Met.	Geol.	Chem.	C.E.	S.E.	Е.Е.	Mech. E.	Arch.	Special.	Not Stated.	Graduate.	Total.	Studied in Two Courses. *	Actual No. of Students.
1864-5 1865-6 1866-7 1866-7 1868-9 1869-70 1870-1 1871-2 1872-3 1873-4 1874-5 1875-6 1876-7 1877-8 1876-9 1879-80 1881-2 1882-3 1883-4 1884-5 1885-6 1886-7 1887-8 1889-9 1891-2 1891-2 1891-3 1894-5 1894-5 1895-6 1896-7	30 41 39 26 22 17 22 33 69 81 91 92 79 67 41 11 41 41 41 41 41 41 42 43 49 48 49 48 48 49 48 48 49 48 49 48 49 48 49 49 49 49 49 49 49 49 49 49 49 49 49	 1 6 2 1 3 4 6 8 8 7 7 7 5 4 4 4 5 5 5 4 3	I I I I I I I I I I I I I I I I I	1 2 3 5 8 5 7 2 6 1 6 2 5 4 2 3 5 6 5 1 5 5 5 5 5 5 5 5 5 3 7 3 3 5 6 2 2 2 7 2 2 2 8 3 5	1 1 2 10 34 60 69 51 55 58 26 24 28 27 52 61 71 89 91 82 82 82 82 82 82 82 82 82 82 82 82 82	2 2 1 1 1 1	19 96 96 116 121 137 141		2 11 275 29 45 53 376 770 722 75 774 777 76 276	 45 53 25 25 44 62 38 25 22 28 20 18 20  1  1  23 33 25 20 18 20 20 20 20 20 20 20 20 20 20 20 20 20	23 27 23 33 24 31 24 47 46 62 66 71 75 80 		477 988 123 1108 888 777 1193 2444 2260 2291 3088 262 2744 2266 240 287 7 243 260 277 325 337 380 3399 432	1 2 4 3 4 4 4 4 9 30 4 4 5 4 4 4 4	47 98 123 108 87 75 97 118 133 165 200 246 226 227 242 262 274 276 290 249 249 243 260 277 325 337 337 337 337 337 439
1898-9 1899-1900	67 90	1 2		34 34	61 68		135	38 67	77 60	38 50		16	468 490	8	459 491

The table exhibits continued increase in the total number of students. The number this year is the largest since the foundation of the School of Mines. The course in Electrical Engineering is, as usual, the leading course in point of numbers. The new course in Mechanical Engineering, which

<sup>\*</sup> Formerly the first year was the same for all courses, and students were not required to elect their course of study till the following year.

began the year before last with a class of fourteen, shows a healthy growth. The other courses, for the most part, maintain about the same number of students as in previous years.

# Undergraduate Courses

School of Mines:	
Engineer of Mines 11	
School of Chemistry:	
Bachelor of Science 4	
School of Engineering:	
Civil Engineer 5	
Electrical Engineer 25	
School of Architecture:	
Bachelor of Science 16	
	61
University Courses	
Master of Arts *	3
D. I. at Community of the community of t	64
Deduct for graduates receiving more than	j
Deduct for graduates receiving more than one degree	1 

The above includes the following degrees, which were granted during the year to candidates who failed to comply with all the requirements at last Commencement:

Engineer of Mines	3	
Electrical Engineer	4	
D 1 1 1 1 1 1 1 1 1 1 1 1	3	
" " (in Architecture)	1	
		ΙI

The following table shows the number of graduates in the different courses of study since the foundation of the School of Mines:

<sup>\*</sup> One received also the degree of Engineer of Mines.

Second   S														
1868       14            14        14        14  <		M.E.	Ph. B. or Met. Eng.	Ph.B. (Geol.)	Ph.B. or B.S. (Chemistry.)	C.E.	S.E.	Е.Е.		A.M.	Ph. D.	Degrees Taken.	Took more than one Degree.	Graduates,
	1868 1869 1870 1871 1872 1873 1874 1874 1875 1876 1877 1878 1878 1879 1880 1881 1882 1883 1884 1885 1884 1885 1886 1887 1888 1890 1891 1892 1893 1894 1895 1896 1897 1899	14 21 9 8 6 7 10 15 20 26 20 22 37 37 16 6 5 9 8 6 6 13 12 9 9 13 14 14 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	1 1	1	2 5 3 100 5 111 222 5 5 9 3 3 4 4 4 4 4 4 3 3 5 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	5 16 277 6 8 8 9 8 5 7 15 14 9 13 11 11 12 12 20 20 13 15 17 12 21 21 21 21 21 21 21 21 21 21 21 21	2	5 7 3 12 13 15 26 23 24 25	3 5 4 8 11 17 11 5 13 15 16 17 9 15 14 16	3 9 3 1 2 4 6 8 3	3 6 2 2 3 3 9 2 2 4 4 4 5 5 1 1 2 2 6 6 1	144 211 10 9 8 9 37 46 46 44 44 45 45 55 58 40 63 63 60 63 60 63 64 64 64 64 64 64 64 64 64 64 64 64 64	200 2 2 2 2 2 4 1 1	14 21 10 9 8 8 7 7 8 8 19 24 43 34 43 35 11 55 4 45 25 7 7 7 6 8 6 11 90 6 3

Graduates of other institutions to the number of seventynine have been in attendance at the Schools of Applied Science during the past year. The following is a list of the institutions from which they graduated and the degrees which they have received:

## PARENTAGE OF DEGREES

Adelphi College Alabama Polyte Amherst College Brooklyn Polyte College of the C College of Phari Colorado Univei Columbia Univei Mass Indiana Univers Johns Hopkins more, Md Kentucky State Lehigh Univers Leland Stanford Michigan Agrict Montana State U New York Univ Oberlin College	chnic Insti, Amherst, chmherst, cechnic Insti lity of Nev macy, New rsity. ersity. crsity. Caml distriction lity. College. ity. l, Jr., Univ lultural Coll College. niversity.	tute. Mass. itute. v York York. Neb. bridge, Balti-	1 1 3 1 1 1 5 3 1 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pennsylvania Military Colleg Chester, Pa. Purdue University. St. Francis Xavier College, Ne York City. St. John's College, Fordhar N. Y. St. Louis University. Stevens Institute of Technology United States Military Academ West Point, N. Y. University of California. University of Kansas. University of Minnesota. University of Wisconsin. University of Wisconsin. Wesleyan University Williams College, Williamstow Mass. Yale University.	2 1 1 2 m, 1 1 yy 2 yy, 1 1 1 1 n,
		For	eign	Countries	
Gymnase Coutar Switzerland Real Schule, Stu			1 1	University of Havana, Havan Cuba University of Paris, France	3
					83
Number	holding of	degree	of	A.B 3;	3
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"	"	"		B.S 28	8
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				83	3
Deduct f	or studen	ts hole	ding	g more than one degree 4	
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				79	)

During the year three hundred and seventy-one students applied for admission to the Schools under this Faculty, as follows:

Admitted, on full or final examination.  Admitted by certificate or diploma *	96 50 99 366
Admitted to regular courses:	
First Class. 126 Second Class. 17 Third Class. 14 Fourth Class. 4	161
Admitted as special students in	
Mining Engineering.15Civil Engineering.2Electrical Engineering.2Mechanical Engineering.6Architecture.17Chemistry.7	
	49
Admitted as graduate students for	
Master of Arts  Doctor of Philosophy	1 3
Total new studentsAdmitted, but did not enter	214
Total admitted	217

The students entering the regular courses were admitted as follows:

<sup>\*</sup> Does not include the whole number so admitted, as the reports from the examining officers do not give this information in all cases. Candidates presenting regents' diplomas and certificates are included among those "admitted on examination."

Admitted without conditions	75
" more than two subjects	217

Of the students admitted, ten were less than eighteen years of age, of whom one was between sixteen and seventeen.

The more important legislation by the Faculty during the year may be summarized as follows:

- I. The unification of the methods of entrance examinations with the procedure and methods followed in Columbia College, which should make the procedure of entrance into the Schools of Applied Science practically identical with that of the College.
- 2. The modification of the system of registration, with a view to securing more prompt enrollment of the students at the opening of the College terms.
- 3. The consideration of a more regular method to be pursued in the introduction of modifications of the various courses during the continuance of such courses in any year.

  Respectfully submitted,

F. R. HUTTON,

Dean.

Appended to this report are the reports of certain of the individual departments.

#### DEPARTMENT OF ARCHITECTURE

The change which was projected last year in the course in specifications and building materials, has this year been effected with satisfactory results. This course is intended to give the students a knowledge and skill which shall make them more immediately serviceable in architects' offices. It also tends to shorten the time required by the slow methods of office apprenticeship. Innumerable details, which in the chance encounters of actual affairs are brought to notice tardily or not at all, are here taken up systematically and in

order, and if not entirely disposed of are made so familiar of aspect that what more the offices have to teach about them is readily assimilated and the student is enabled to pass on promptly to the more difficult lessons which can be studied only in the school of practical experience.

These subjects, which formerly ran through the first three years, are now concentrated in the third year, with a manifest gain. The interest is more consecutive and more intelligent. The first-year men proved too young and too ignorant to take them up to advantage, and the second year was too crowded with other subjects.

The only other change has been in the handling of the architectural essays, weekly themes, the object of which is not only to give a much-needed discipline in the writing of English, but to exercise the men in observing and recording facts, drawing reasonable inferences from them, and putting these ideas in order. After a number of somewhat unsatisfactory experiments, the plan has this year been adopted of asking for written descriptions of buildings, shown in plan or in elevation, in photographs and prints, with criticisms. In these the aim is not so much to find fault as to recognize and point out merits and to find the secret of this excellence, and its defects are noted to suggest their remedy. The writing of essays thus directly serves the work in design.

The Architectural Museum has been enriched by accessions of both building materials and building appliances, furnished gratis or at small cost by the dealers, or makers, and also of two notable models. Mr. McKim has added to his previous gifts the model of his first design for the Music Hall now being erected in Boston, and Messrs. Babb, Cook, & Willard have given us the model of the house they are building for Mr. Andrew Carnegie, on Fifth Avenue. Some accessions have been made to the collections of photographs and lantern slides, and a beginning has been made of a series of contemporary architectural drawings and designs, which promises to be of permanent interest and value.

## DEPARTMENT OF CHEMISTRY

The following changes were made in the corps of instructors of this Department at the beginning of the present year:

Professor P. deP. Ricketts was absent on leave during the past year, and his work was performed by Dr. Edmund H. Miller, Dr. Henry C. Sherman, and Dr. Cavalier H. Jouet.

Barry Hogarty, B.S., Assistant in Analytical Chemistry, in place of Frederic J. Pope, Ph.D., resigned.

Emilius W. Scherr, Jr., B.A., Assistant in Organic Chemistry, in place of Charles A. Harper, Ph.D., resigned.

Henry Fisher, B.S., Assistant in Analytical Chemistry, Quantitative, in place of Frederic S. Hyde, Ph.B., resigned.

Henry C. Sherman, Ph.D., was appointed lecturer in Analytical Chemistry, Quantitative.

Twenty-nine different courses in Chemistry were offered by the Department. Of these, twenty-six were attended by numbers of students varying from a minimum of one to a maximum of three hundred and ten. No students presented themselves for the three of the courses, Nos. 5, 8, and 15, which were quite special in their character. The lectures in General Chemistry were given in duplicate by Prof. Chandler to the students of the Schools of Applied Science and Columbia College, and by Prof. Pellew to the students of the School of Medicine.

The number of different students of the various Schools receiving chemical instruction during the past year, was 644; but, as some of these attended two or three different courses, the total attendance of the different courses aggregates 1257. The details of attendance are shown in the following tabular statements:

Courses of instruction offered by the Chemical Department, with the number of students attending each:

Course 1—General Inorganic Chemistry. 3 lectures and 1 recitation per week throughout the year. Professor Chandler, assisted by Dr. Laudy, Mr. Tucker, and Mr. Whitaker.

Students of the Schools of Applied Science... 134

	throughout the year and 2 afternoons laboratory practice, either the first or second half-year. Professor Chandler, Dr. Laudy, and Mr. Whitaker. Students of Columbia College 7.
	neral Inorganic Chemistry. 2 lectures per weel throughout the year. Professor Pellew and Mr Watters. Students of the School of Medicine 220
	ysical Chemistry. Second-Year Course. 2 hours per week in lectures and recitations and 1 afternoor laboratory during the second half-year. Dr. Morgan
	ysical Chemistry. Fourth-Year Course. 3 hours per week in lectures and recitations during the entire year and 1 afternoon per week in the labora tory during the first half-year.  Dr. Morgan
1	vsical Chemistry. Post-Graduate Course. 2 lectures and at least 12 hours laboratory work per week throughout the year.  Dr. Morgan
	perimental Chemistry. Laboratory Practice. a afternoons per week either the first or second half- year. Mr. Whitaker. Students of Columbia College
1	perimental Chemistry. 2 conferences and two after- noons laboratory work per week for either half-year Professor Pellew, assisted by Dr. Vulte, Dr. Mathews and Mr. Watters. Students of the School of Medicine 226
1	dvanced Inorganic Chemistry. Rare Elements. It lecture per week throughout the year.  Dr. Lenher

Course 7—Q	ualitative Analysis. I lecture, I recitation, and 3 afternoons laboratory work throughout the year. Dr. Wells, Dr. Lenher, and Mr. Whitaker 137
Course 8—T	he Spectroscope as Applied to Quantitative and Qualitative Analysis. Post-Graduate Course. Laboratory practice and conferences with the instructor. 8 hours per week either half-year.  Dr. Wells
Course 9—Q	Metallurgists. 4 hours lectures and recitations and 15 hours laboratory practice throughout the year.  Dr. Miller and Dr. Jouet
Course 11—(	Quantitative Analysis for Second-Year Electrical Engineers. 15 lectures and 60 hours of laboratory practice during the first half-year.  Dr. Sherman and Mr. Fisher
Course 12—(	Quantitative Analysis for Second-Year Mining Engineers. 3 lectures or conferences per week during the first half-year; 1 conference during the second half-year, with 15 hours of laboratory practice in alternate weeks throughout the year.  Dr. Miller and Dr. Jouet
Course 13—(	Quantitative Analysis: Proximate Organic Analysis; for Third-Year Chemists. 2 lectures and 2 recitations and, for Analytical and Organic Chemists, 16 hours per week, and for Industrial Chemists 10 hours per week, of laboratory practice during the second half-year. Dr. Sherman
Course 14-0	Quantitative Analysis: Special Methods of Commercial Analysis; for Fourth-Year Analytical Chemists and Metallurgists. 2 lectures per week throughout the year and laboratory practice for half the year. Dr. Miller and Dr. Sherman

Course	r5—Post-Graduate Course in Proximate Organic Analysis. Conferences and research laboratory work, 20 hours per week throughout the year. Dr. Sherman
Course	16—Quantitative Analysis. Post-Graduate Course in Special and New Methods. Conferences and research laboratory work, 12 hours per week throughout the year. Dr. Miller 4
Course	17—Assaying Ores and Metallurgical Products. 2 lectures and 1 recitation per week during the first half-year, with laboratory work for Mining Engineers 16 hours of each alternate week throughout the year; for Metallurgists, Analytical and Organic Chemists, 16 hours every week during the first half-year.  Dr. Miller and Mr. Hogarty
Course	18—Assaying: Special Methods. Post-Graduate Course.  Conferences and laboratory practice at least 6 hours per week for one half-year. Dr. Miller
Course	20—Organic Chemistry. Elementary Course. 2 lectures and 1 recitation per week throughout the year.  Mr. Bogert and Mr. Scherr
Course	30—Organic Chemistry. Elementary Laboratory Course.  8 hours per week throughout the year.  Mr. Bogert and Mr. Scherr
Course	21—Organic Chemistry. Fourth-Year Course. 3 lectures and 1 recitation and 20 hours laboratory practice first half-year for all Chemists, and 2 hours conferences for students in Organic Chemistry.  During the second half-year, 2 lectures and 1 recitation per week for students in the courses of Analytical and Industrial Chemistry; 2 hours conferences and 16 hours laboratory work for students in the courses of Organic Chemistry.  Mr. Bogert and Mr. Scherr

Course 22—Organic Chemistry. Minor Post-Graduate Course Personal instruction and laboratory work not les than 12 hours per week throughout the year. Mr. Bogert
Course 23—Organic Chemistry. Major Post-Graduate Course Original investigation and research. Personal in struction and laboratory work. Mr. Bogert
Course 24—Industrial Chemistry. General Course. 3 lectures and for Chemists, 1 recitation per week throughouthe year. Professor Chandler, Professor Pellew and Dr. Laudy
Course 25—Industrial Chemistry. Special Course. 3 lecture and 1 recitation throughout the year. Professo Chandler, Professor Pellew, and Dr. Laudy 2
Course 26—Industrial Chemistry. Laboratory Practice: preparation of chemicals and factory processes. 3 after noons per week during the first half-year. Professo Pellew and Mr. Tucker
Course 27—Industrial Chemistry. Laboratory practice: textile industries, bleaching, dyeing, and calico-printing 3 afternoons during the second half-year.  Professor Pellew and Mr. Tucker
Course 28—Industrial Chemistry. Laboratory practice: wate purification; photometry; electro-metallurgy; fer mentation, etc. 5 afternoons per week during the second half-year.  Professor Pellew and Mr. Tucker
Course 29—Industrial Chemistry. Laboratory practice: origina research throughout the year.  Professor Pellew and Mr. Tucker

								Students.	ents.					
ć.	Title of Course.	Instructors.	А.В.	A.M.	Ph.D.	M.D.	E.M.	Met. E.	B.S. Chem.	C.E.	E.E.	Mech. E.	Spec.	Total.
-	General Chemistry, App. Sci. and	Chandler, Laudy, Whita-	73	-			ç;	-	15	61 61	85	25	81	207
ci c	General Chemistry, P. and S.	Pellew, Watters				226								226
-	and Col. Coll,	Whitaker, Watters	73			226							=	310
01	Advanced Inorganic Chemistry	Lenher	)	-	¢1				Ç				-	7
ω.	Physical Chemistry, 2d year	Morgan		C)					ın.				-	· oc
+ 10	Physical Chemistry, 4th year Physical Chemistry, Post-G.	Morgan		-	-				<del></del>					9 5000
. 1-	Qualitative Analysis	Wells, Whitaker, Lenher	7	-	-		30		15	Ç1 C1	27	25	5	137
s	Spectroscopic Analysis	Wells												none
0	Quantitative Analysis	Miller, Jouet	1	3					7				-	<u>c</u> 1
_	Quantitative Analysis, E.E.	Sherman, Fisher									33	-	-	35
<u>C1</u>	Quanlitative Analysis M.E.	Miller, Jonet					33						~	30
13	Quantitative Analysis, Chem.	Sherman		-					6				. 61	<u>21</u>
7	Quantitalive Analysis, 4th year													
	Chem. Met.	Miller, Sherman		-	¢:								-	**
50	Quantitative Analysis, Post-G.	Sherman			-									none
91	Quantitative Analysis, Post-G.	Miller		C1									2	-
	Assaying, 3d year	Miller, Hogarty		-			50		6			-	7	5
2	Assaying, Post-G.	Miller		_			-							¢1
50		Bogert, Scherr	3	S					S				4	17
30	y	Bogert, Scherr	C1	_		~							+	7
13	_	Bogert, Scherr		~	I	-			4					
1		Bogert, Scherr			-									_
13	Organie Chemistry, Post-C. major	Bogert, Scherr		-	Г									¢1
15	Industrial Chemistry	Chandler, Pellew, Laudy	18	61	C1		25		2	17	33	5	ĸ	156
23	Industrial Chemistry, Special	Chandler, Pellew, Laudy		c	CI		,		1.5		,		-	c1
50	Industrial Chemistry, laboratory	Pellew, Tucker		-					10				۲,	1.1
27	Industrial Chemistry, laboratory	Pellew, Tucker		61	_				CI				)	
2S	Industrial Chemistry, laboratory	Pellew, Tucker							61		1		I	Ŋ
53	Industrial Chemistry, laboratory	Pellew, Tucker		н	٦									61
			177	22	IA	453	133	-	110	19	122	7.1	83	1257
				-	-	2	3	•			!		3	10-

Students who attended one or more courses of chemical instruction:

COLUMBIA COLLEGE	
Freshmen 30	
Sophomores 40	
Juniors 24	
Seniors 7	
Specials	
	116
SCHOOLS OF APPLIED SCIENCE	110
. 01	
1 01	
2d Class	
3d Class	
Specials18	
Candidates for A.M o	
Candidates for Ph.D o	
	277
SCHOOL OF PURE SCIENCE	
Candidates for A.M 8	
Candidates for Ph.D 8	
Specials	
	25
School of Medicine	226
School of Medicine	
Total	644
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Students who received practical instruction in the different laboratories:

General Chemistry; Columbia College General Chemistry; School of Medicine	84 226
General Chemistry Total.  Qualitative Analysis Quantitative Analysis Organic Chemistry Industrial Chemistry Assaying. Physical Chemistry.	137
Total	652

There has been an increase of 27 in the number of students receiving chemical instruction, and the laboratories are, some of them, occupied to their full capacity, and even overcrowded. There were 10 more students assigned to the laboratory of General Chemistry and Qualitative Analysis than the room would hold, and it was necessary to put

them in the industrial laboratory, which was not satisfactory, as it took them away from the officers upon whom they rely for assistance while at work. The Department will experience constantly increasing inconvenience from want of space, which can never be adequately met, except by the finding of accommodations in other buildings for the Department of Architecture, which occupies the entire upper floor of Havemeyer Hall, and the Department of Metallurgy, which occupies two thirds of the basement, and devoting all the floors of Havemeyer Hall to the Chemical Department, for which they were originally intended.

Valuable contributions to the Museum have been received during the past year which have been reported elsewhere.

In conclusion it should be said that the work in the different laboratories has been extremely satisfactory. The number of Post-Graduate students studying for the higher degrees was 16, of whom 8 pursued courses for the degree of Master of Arts and 8 for the degree of Doctor of Philosophy. Many of these students were engaged in original investigations which have resulted in valuable contributions to chemical science and which have, some of them been already published in scientific journals.

Contributions from the Chemical Laboratories of Havemeyer Hall On the Decomposition of Nickel Carbonyl in Solution, by Victor Lenher, Ph.D., and Herman A. Loos, A.M., Four. Am. Chem. Soc., Jan., 1900.

A Study of Metallic Carbonyls and their Decompositions, by Herman A. Loos, A.M., and Victor Lenher, Ph.D., School of Mines Quar., 1900.

The Electrolytic Decomposition of Brass, by J. Livingston R. Morgan, Four. Am. Chem. Soc., Mar., 1900.

Some New Tellurium Derivatives, by Victor Lenher, Ph.D., Four. Am. Chem. Soc., Mar., 1900.

Laboratory Method for the Continuous and Uniform Generation of Acetylene and its Purification, by J. A. Mathews.

The Carbide of Gold, by J. A. Mathews and L. L. Watters. Preliminary Study of the Cobalticyanides, by E. H. Miller and J. A. Mathews.

A New Bridge Arrangement for the Determination of Electro-

Motive Force by the Aid of Lippman's Electrometer, by J. Livingston R. Morgan, Four. Am. Chem. Soc.

A New Synthesis in the Quinazoline Group, by Marston T. Bogert and August H. Gotthelf, Four. Am. Chem. Soc.

On the Production of Asymmetrical Alternating Currents by Means of Electrolytic Polarization, by W. L. Hildburgh, *Elec. World and Engineer*, 1900.

A New Cell for Rectifying Alternating Currents, by W. L. Hildburgh, Four. Am. Chem. Soc., 1900.

A Method for Determining Electrical Conductivity with Direct-Current Instruments, by W. L. Hildburgh and J. Livingston R. Morgan, *Jour. Am. Chem. Soc.*, 1900.

Notes on the Ferrocyanide Titration of Zinc, by Edmund H. Miller and E. J. Hall, School of Mines Quart., April, 1900.

A Chromium Cell for Rectification of Alternating Currents, by J. Livingston R. Morgan and W. A. Duff, *Four. Am. Chem. Soc.*, 1900.

#### DEPARTMENT OF GEOLOGY

The personnel of the Department of Geology has remained unchanged. Three lectures weekly have been given in Geology 2 to students in the second year of the courses of Mining Engineering and Metallurgy, and to third-year students in Civil Engineering. Conferences on rocks and fossils have been regularly held, and during the fall excursions in the neighborhood were offered on Saturdays. Three lectures weekly have been given in Geology 3 to third-year students in Mining Engineering and Metallurgy and to candidates for advanced degrees.

Geology 4 was given in the last half of the second term to second-year students in Mining Engineering and Metallurgy.

Two sessions of the Summer School in Geology were held. The first was given to those students who were not obliged to attend the Summer School of Mining. Three days were passed in the region of Peekskill under Prof. Kemp, and five days near Rondout under Mr. van Ingen. The work was given in the interval between the close of examinations and Commencement. The second session was undertaken in July, following the Summer School in Mining.

A week was passed under the guidance of Prof. Kemp at Wilkesbarre, Pa., Delaware Water Gap, and Beemerville, N. J.

## DEPARTMENT OF CIVIL ENGINEERING

During the past year many substantial advances have been made in the Department of Civil Engineering, constituting a part of the continuous progress which characterizes the work of that Department in each succeeding year. Although the observation may be applied to practically all subjects given in the Department, special development has been made in the laboratory and afternoon work, and in road and railroad work and in structural design. Material additions continue to be made to the facilities of the cement-testing laboratory in the way of accelerated tests of various kinds as well as in material extensions of the more usual testing work done by the students. The laboratory plant has among other things received a very valuable addition through the generosity of the Fairbanks Company in the gift of their latest type of cement- and mortar-testing machine with a full set of all The road-material-testing laboratory has been appliances. completely installed and put in operation. All the machines, including the abrasion machine, the machine for testing the cementing qualities of material, and the automatic sifter, have been in almost continuous operation for several months. Besides being available for the use of students a large amount of work has been done for the director of the New York State Museum and for the State Engineer and Surveyor of the State of New York. Considerable extensions have also been made in the students' testing work in the mechanical laboratory.

The hydraulic laboratory now being put in place by Mr. Chas. C. Worthington, forming a portion of the Worthington laboratory, is in a forward state of construction, and it is hoped that it may be available for the work of the students taking the course in hydraulics during the coming year. Perhaps the greatest development in any one subject is that which has taken place in the course in railroad engineering. It is the desire of the management of the De-

partment to strengthen and extend this special field of work as rapidly as possible and material progress has been made during the academic year just closing. Measures have been taken to secure still further substantial gains in the same direction within the near future.

The session of the Summer School in the summer of 1899 was one of marked success in many directions. The number of students in attendance was greater than ever before, and considerable advances were made in the amount of work done as well as in quality of execution. The hydrographic survey, which is made during the latter part of June on the Harlem River in the vicinity of Kingsbridge, now includes complete current meter observations of the tidal flow through Spuyten Duyvil Creek.

On the whole the year has been marked by material progress, both in quantity and quality of the work done.

## DEPARTMENT OF ELECTRICAL ENGINEERING

Since the issue of the last annual report, the following changes have taken place in this Department's personnel:

Mr. W. H. Freedman, formerly Tutor in Electrical Engineering, has been called to the position of Professor of Electrical Engineering at the University of Vermont, Burlington, Vt.

Mr. Fitzhugh Townsend, formerly Assistant in the Department, was appointed Tutor to take Mr. Freedman's place.

Mr. C. S. Aylmer-Small, E.E. '99, was appointed Assistant in Electrical Engineering to carry on the duties performed by Mr. Townsend.

Professor Crocker returned from his leave of absence and resumed his duties in connection with the University.

Owing to the change in the personnel of the Department, it was necessary to adjust to some extent the conduct of some of the courses. Telegraphy and Telephony (Elec. Eng. 6), which had been given by Mr. Freedman, was taken by Professor Crocker, and Theory of Dynamo and Motor (Mechanics 6 and 7) were taken by Mr. Townsend in conjunction with Dr. Pupin.

An important change which has been made is the transfer of the course in dynamo and motor design from Summer Work to a regular course known as Electrical Engineering 15. This course consists of two-hours lectures per week during the second term, with an hour conference in the drawing-room. This transfer has enabled the men to get a much better idea of the design of electrical machinery, for the reason that authorities can be consulted at the University to better advantage than during the summer vacation.

The laboratory work in all courses has been largely facilitated by the introduction of more detailed notes and records. This has been specially noticeable in the third-year Civil and Mining Engineering courses. A printed pamphlet covering the course taken by these students in the Electrical Laboratory was compiled by Mr. Sever and forms the text-book for this course. The title of this is "Engineering Tests of Direct-Current Dynamos and Motors, with Preliminary Tests on the Properties of Conducting Materials." Storage battery and photometer tests have been carried out by the fourth-year men during the second term. The fourth-year alternating current work has been systematically conducted by Mr. Townsend and Mr. Small.

During the year, through President Low's efforts, the Department received a gift of \$2500, to be used in the purchase of new equipment. This is known as the "Special Equipment Fund of 1900." With this there has been bought the following apparatus:

- Two General Electric, 6½ kilo-watt D.C. compound generators direct connected to two ten-horse power D.C. motors. With this apparatus go the necessary starting boxes and regulating devices.
- One Westinghouse 7½ kilo-watt 2-phase rotary-converter with a ten-horse power D.C. motor to operate it independently. With this apparatus go the necessary regulating devices.
- In the matter of instruments, there have been purchased a number of alternating-current ammeters and watt-meters.
- Two new switch boards for the control of the above equipment are to be completed during the summer.

During the year the following visits of inspection have been made:

During January, the fourth-year class in Electrical Engineering, accompanied by members of the teaching staff, visited the factory of the Crocker-Wheeler Company at Ampere, N. J. Every facility for closely inspecting the various processes of manufacturing dynamos, motors, and appliances was afforded the party.

The first part of February a party of about twenty-two men, consisting of members of the Senior Electrical Engineering class and Professor Crocker, Mr. Sever, and Mr. Townsend, visited the factory of the General Electric Company at Schenectady, N. Y. One day was spent in carefully going over the most instructive portions of this factory, while another day was spent in visiting the Schenectady Locomotive Works, and the power plant at Mechanicsville, N. Y. Incidentally a visit was made to the Capitol at Albany. This trip was a most successful and instructive one, affording the men the best opportunities for viewing the large work which is now being developed for power transmission and other forms of electrical engineering.

It is again recommended that provision be made for another assistant for laboratory instruction. The work in the laboratory has become so large and is of such importance that it has been found somewhat difficult for the present force to carry out the necessary instruction in the most satisfactory manner. For this reason another assistant can be used to excellent advantage.

#### DEPARTMENT OF MECHANICAL ENGINEERING

The work of this Department is naturally divided into four groups: The work in the class-room; the work in the draughting-room; the work in the mechanical and testing laboratories; the work in the shops.

In the class-room exercises which cover the engineering of power plants, Professor Hutton's text-books, The Mechanical Engineering of Power Plants, and Heat and Heat

Engines, have been used with explanatory lecture material and abundant use of the projection lantern. This year also has been signalized as the first year of service of the new Adjunct Professor, William Ledyard Cathcart. To him was assigned the work with the third-year students in design of engines and engineering structures, which includes the theories of the resistance of materials as applied to dynamic structures. For this work, Low and Bevis and Reuleaux's Constructor have been the preferred text-books. supplemented with manifold lecture notes distributed to the students. Instructor Woolson has given courses in mechanism and transmission machinery, and has extended the work in properties of materials for the Mechanical and Electrical Engineers. An important development has been a special course in the selection and special adaptability of timber and the determination of different woods by the inspection of the sawn plank. This course is believed to be distinctly original and of marked value. Instructor Mayer has conducted the class-room work, as well as the draughting-room exercises in descriptive geometry, graphics, shades, shadows, and perspective. The instruction in the locomotive engine for the Civil Engineers has been conducted by Professor Hutton in the first term of the fourth year, and for all classes of students in water motors and the dynamics of machinery.

The work in the drawing-rooms has been in charge of Professor Cathcart for the third-year Mechanical Engineers, and of Instructor R. E. Mayer, and Assistant S. O. Miller for the other classes for the first two years. The drawing-room work of the third-year students has included the design of valve gears on an actual scale, and the working out of problems in design of engineering structures and details. The work of the classes in the elements of draughtsmanship has been entirely satisfactory.

The work in the testing laboratory has been conducted for the Civil, Mining, and Electrical Engineering students by Adjunct Professor Lovell of the Department of Civil Engineering, and by Assistant McHarg pursuant to a policy inaugurated in 1898 whereby the instruction in the actual handling of the testing machines should be so divided that it should be under the direction of the officers who give instruction in the theory of the resistance of materials. The instruction for the Mechanical Engineers was carried on by Instructor Woolson, who conducts the instruction in properties of materials and the theory of testing for such students. The class was divided into small groups, and the scope of the work included the testing of timber, brick, cast iron, wrought iron, and steel. The limited facilities in the matter of the number of testing machines now available has limited the extent for the present to which this work could be developed for the Mechanical Engineering students.

The work in the great mechanical laboratories of the University was begun this year for the first time. It has included the first experience of the students in Mechanical Engineering in the operations of calibrating the apparatus which is used by the expert to determine its accuracy and reliability, and has included also the testing of the physical qualities of lubricants and similar materials which are used by the engineer. The progress of installation with respect to some of the more important machinery has made it impossible to make use of these great pieces of apparatus this year, although the logical period for their use comes in the Senior year of the course in any event.

This year has witnessed the installation in place of the gift of the sons of Edward P. Allis in the central bay of the laboratory. It is a triple expansion horizontal steam-engine with two fly-wheels, and with three air-compressing cylinders arranged in series behind the steam cylinder with intercoolers for lowering the temperature of the compressed air. The engine has been run occasionally during the spring since its completion on the 21st of February, to furnish compressed air to the locomotive "Columbia," for experimental running of the latter.

The year has witnessed also the receipt and installation of the transmission machinery, the gift of the Dodge Manufacturing Company of Mishawaka, Ind. By the kindness of Mr. G. A. Suter, and the B. F. Sturtevant Company of Boston, the locomotive "Columbia" has received additional facilities for the disposition of the products of combustion and the steam from its smoke stack, so that it should be possible in the laboratory itself to reproduce the conditions of working of such an engine in the free open air. A second fan takes the discharge from the engine stack and carries it upwards through a flue to the roof.

By the kindness of Mr. J. M. Cornell of this city, the "Columbia" and the Corliss engines have been fitted with grated coverings over the openings in the foundations which were required for the proper and convenient installation of the machinery.

Considerable work has also been done by the staff of the Department in connecting up and in fitting the gifts which had already been received, but whose installation required to be completed.

It is expected that during the summer of 1900, by the kindness of friends of the Institution, the exposed steam piping may be covered with a proper non-conducting material, and that the appliances for measuring the consumption of power by the engine "Columbia" will be installed before the opening of the fall term.

Gifts have also been received from Mr. E. G. Barratt of a form of ice-making or refrigerating machine; a small sectional boiler adapted for high pressures from Mr. Stephen W. Baldwin of New York City, and gifts of money for installation have also been reported to the Trustees.

The section of laboratory equipment devoted to study and practice in workshops has been in operation for all students of Engineering at the University. The shop devoted to wood-working and pattern-making has been under the charge of Instructor Chas. W. Weick of the Teachers College staff, and the work has been most effective and satisfactory. For the Mechanical Engineering students, the equivalent of two afternoons a week, of two and one half hours each, have been devoted to work at the bench in

joinery and framing, for the first term; in wood-turning and pattern-making, for the second term. The Summer School, devoting a period which is the equivalent of one hundred hours, in the month of June, to pattern-making, moulding work, and foundry work, will bring the student to the objective point of the entire first-year course, which is the familiarizing of the young engineer with the conditions which must be met in the design of structures to be realized in cast iron. The students in Electrical and Civil Engineering have had the equivalent of one afternoon period of two and one half hours per week, and have pursued a selected course chosen from the more extended course of the Mechanical Engineers. In the second year, for the Electrical and Mechanical Engineers, the course in the metal-working departments has been conducted by Instructors Chas, P. Benns and C. C. Sleffel of the Teachers College staff. It has given to the Electrical Engineers one afternoon period of two and one half hours per week, in the first term devoted to forging and bench or vise work, and the same period in the second term to work at the machine tools, with planer, lathe, milling machine, etc.; and to the Mechanical Engineers have been given four such periods. The experiment for the extension of the shop work for the Mechanical Engineers into a part of the third year was begun this year for the first time, and an effort has been made to give to this section a character which should suggest the commercial conditions under which work is done where competition has to be recognized. The problem of accomplishing this result is not an easy one, but it is believed to touch upon a weak point in such shop work in the colleges where no attention is paid to this important aspect of the work of the constructing engineer.

The Professor of Mechanical Engineering accompanied a party of students to the works of the Bethlehem Steel Company at Bethlehem, Pa., during the two days of break at Easter time, and a most instructive visit was permitted by the courtesy of the company. The students have also accompanied the Instructor in Machine Shop Work on vari-

ous short excursions during the year which have been most profitable. This year has also marked considerable increase in effectiveness and extent of the foundry-work instruction in the Summer School by the installation of special appliances for this object.

## DEPARTMENT OF MECHANICS

For a detailed statement as to the educational staff of the Department during the academic year 1899–1900 reference is here made to the departmental report submitted to the Dean of the School of Pure Science.

The courses of instruction given during the year, the instructors conducting them, and the number of students attending each course are specified as follows:

- Course 1.—Analytical Mechanics, three hours per week throughout the year, by Professor Woodward; 97 students.
- Course 4.—Thermodynamics, three hours per week during the second half-year, by Professor Pupin; 55 students.
- Course 6.—Theory of dynamo and motor, three hours per week during the first half-year, by Professor Pupin; 27 students.
- Course 7.—Theory of direct-current dynamo and motor, three hours per week during the second half-year, by Professor Pupin; 27 students.
- Course 8.—Theory of alternators and transformers, three hours per week during the first half-year, by Professor Pupin; 24 students.
- Course 9.—Theory of variable currents, two hours per week during second half-year, by Professor Pupin; 24 students.
- Course 19.—Analytical Mechanics, abridged course, two hours per week throughout the year, by Mr. Pfister; 11 students.
- Course 20.—Thermodynamics and Hydromechanics, two hours per week throughout the year, by Mr. Pfister; 5 students.

The noteworthy increase in the number of students in the Department during the year over the numbers in previous years has pressed pretty closely on the time at the disposal of the teaching staff; and it appears that an additional instructor will soon be needed if the present rate of increase

in the number of students is maintained. Aside from the undesirability of conducting elementary work with students in large classes, there is a practical difficulty found in the limited size of our class-rooms; so that, in the near future, it will probably be advisable to separate the classes in some of our courses into two or more divisions.

#### DEPARTMENT OF METALLURGY

Dr. Joseph Struthers resigned the tutorship in Metallurgy on January 1, 1900, and was succeeded by Mr. W. A. Bentley, B.S. (Columbia), at first as Lecturer and later as Instructor in Metallurgy.

The Summer School was held in two sections, the first of which, for students in Metallurgy and in Mining Engineering, studied the metallurgy of lead, gold, and silver in Colorado; the second, for students in Metallurgy and in Mechanical Engineering, studied the metallurgy of iron and steel in Pittsburg and Johnstown, Pa.

The metallurgical laboratory received from Messrs. Fraser & Chalmers a cupola furnace for smelting copper ores and a large English cupel furnace, and from the Wilbraham Baker Blower Company a Green blower. These important gifts will enable the Department to widen the laboratory instruction very materially.

The Department has purchased many new and important pieces of apparatus, including many special furnaces, a Roberts-Austen autographic Le Chatelier pyrometer, a portable Le Chatelier pyrometer, and Le Chatelier's new microscope for opaque objects, with monochromatic illumination by mercury arcs.

The metallurgical laboratory, as in previous years, has been used chiefly by advanced students; but a new course, Metallurgy 6A, of laboratory instruction for students in Mining Engineering has been organized, and will be given during the coming winter. Students in Metallurgy continue to take the longer laboratory Course 6.

### DEPARTMENT OF MINERALOGY

The courses of instruction as set forth in the annual announcement have been given to much larger classes than in previous years, as is shown by the following tabulation:

	Courses.	STUDENTS ATTENDING.				
	COURSES.	1896-97	1897-98	1898-99	1899-1900	
II.	Blowpipe Analysis Crystallography Mineralogy:	22	34 34	40 41	54 56	
	First Class		32 23 18	35 29	56 29	
VI.	Minerals of Building Stones Optical Mineralogy Physical Crystallography		15	20 22 3	18 37 4	

In order to insure to each student the desired thorough drilling in all portions of the work it was found necessary to divide the classes into sections and to introduce a more exactly planned system of instruction. In Courses IV. and V., for instance, each student now makes use of four collections as follows:

- 1. The Museum, which is open from 9 A.M. to 5 P.M.
- 2. The student collection of labelled specimens in locked drawers, opened at assigned hours and at other times upon request.
- 3. The lecture collections. Twelve duplicate labelled collections, of which corresponding trays are distributed before the lecture, one for each two or three students. These collections have proved of very great assistance, and insure to each man the opportunity to handle at the time of description all the more common varieties of the mineral described.
- 4. The determinative sets. Two hundred and fifty trays of unlabelled specimens, each tray marked with a Set number and containing specimens of minerals from one division. Each student determines 100 to 120 specimens.

In Course II., Crystallography, more attention was paid to actual crystals than heretofore, several hundred crystals of common minerals having been assembled and thirty hand goniometers constructed. With the new edition of the textbook it will be possible to still better bridge the gap between the model and the actual crystal.

The stock of lantern positives and of mineral and rock sections was considerably enlarged and more hours were given to lantern illustrations.

The publications of the officers of the Department, details of graduate work, and changes in collection and equipment are stated in the report to the Dean of the Faculty of Pure Science.

#### DEPARTMENT OF MINING

The Summer School of Mining was in charge of Professor Robert Peele as heretofore, assisted by Mr. William S. Thyng and Mr. Charles Fulton, graduates of the School of Mines. The work of the School was begun May 29, 1899, in the lead region of southeastern Missouri, with headquarters at the mines of the Central Lead Co., one mile from the town of Flat River. For the privilege of visiting these mines we are indebted to Mr. Arthur Thacher (S. of M. 1877), the president of the company. Unfortunately, about the end of the second week, while the study of mine operations and the underground surveys were in progress, a number of cases of smallpox appeared among the miners in Flat River and vicinity. On account of the serious danger to which the students were thus exposed, and because of the probability of the immediate establishment of quarantine regulations, which would have seriously interfered with the work of the School, Professor Peele decided to leave the region and continue the work of the Summer School elsewhere. The students were all vaccinated without an hour's delay after the presence of the disease became known, and all necessary precautions were taken to prevent the class from carrying the contagion with them. The quarantine regulations were put in force a day or two after the class left.

Professor Peele went at once to Wilkesbarre, and there was able to make very favorable arrangements with the General Manager of the Lehigh Valley Coal Co. for the continuation of the work of the class in the Wyoming valley mines of that company. There was a total loss of five days to the students by the transfer, which was unavoidable.

In the coal region, the class visited the Dorrance, Maltby, Exeter, Stanton, Nottingham, and Sugar Notch properties of the Lehigh Valley and Lehigh and Wilkesbarre companies, and spent one day also at the Glen Lyon and Nanticoke mines of the Susquehanna Coal Co.

The Summer School was attended by twelve students, and the five-weeks session ended July 1, 1899, when the class was joined by Professor Kemp for the usual work in field geology.

During the year, 106 students were enrolled in the School of Mines, an increase of 25 as compared with the year before, and the largest number since 1885. Of these students, 27, or about one quarter, are graduates of other institutions, 5 holding first degrees in civil or mechanical engineering and 22 baccalaureate degrees, about equally divided between arts and science.

An unusually large proportion of these students come to the School of Mines from a distance; 35 per cent. only are from New York City, as compared with about 55 per cent. in the University at large. About 45 per cent. of the mining students come from the mining regions, most of the western States and Territories being represented, while 10 per cent. come from abroad, from Europe, South Africa, Australia, South and Central America.

The usual courses of instruction were given as detailed in the catalogue and announcement circulars. A new course, Mining 2b, Earth and Rock Excavation, two hours per week during the first half-year, was delivered by Professor Peele to third-year students in the course of Civil Engineering.

During the past year over \$20,000 has been subscribed by friends of the School of Mines toward an equipment and endowment fund for the Departments of Mining and Metal-

lurgy, besides which \$2700 was contributed directly for the further equipment of the ore-dressing laboratories.

During the year a large two-sieved jig and a large adjustable buddle have been constructed, and the main laboratory has been fitted with shafting and pulleys, an ore room has been fitted with bins and stocked with ore obtained by gift and purchase from different localities.

To the equipment of the mechanical assay laboratory have been added five Vezin laboratory jigs, a Richards laboratory spitzlutte, a powerful electro-magnet for ore separations, a Weatherhead mortar for crushing ore samples, and a ball pulverizing machine for fine grinding.

Gifts of machinery for the ore-dressing laboratories have been received from Fraser & Chalmers of Chicago, who have contributed a full-sized Frue vanner of special design, and from the Mine and Smelter Supply Co. of Denver, who have presented us a Wilfley concentrator.

Gifts of ore were received: from the New Jersey Zinc Co., two tons zinc ore; from the Arlington Copper Co., one ton copper ore; from Otto G. Mayer & Co., two and a half tons pyrites; and from the Armenius Chemical Co. and Mr. J. Parke Channing, small lots of copper ore.

Gifts of working drawings of mine plant and machinery were received: from E. T. Connor, Division Superintendent Lehigh Valley Coal Company, twenty-four large blue prints; from Lester Strauss, four large blue prints; and from *Mines and Minerals*, nine photo-engravings.

Gifts of books for the library of the Department were received: from the California Miners' Association, one volume; from the U. S. Geological Survey, six volumes; from John Wiley & Sons, seven volumes; from D. Van Nostrand Co., six volumes; from the Mine and Smelter Supply Co., one volume; from the Gates Iron Works, one volume; from Thornton L. Motley Co., one volume; from the editors of the School of Mines Quarterly, fifteen volumes; from H. S. Munroe, five volumes; and from the American Institute of Mining Engineers, about 4000 pamphlets.

During the present summer, June and July, 1900, the

Summer School of Mining is to be held in the vicinity of Cripple Creek, Col. The class is in charge of Professor Robert Peele as usual, assisted by Mr. Frank Cyrus Hooper, Instructor in Mining, and Mr. Charles Fulton. The class this year numbers twenty-two men, nineteen of the fourthyear class, one of the third year, and two new students, graduates of Cornell and Princeton. In addition to the above. four students make independent trips for the study of mining operations to other mining districts in Colorado, under the direction of Professor Peele. These men have had considerable experience in mining and are able to work independently of the regular class to good advantage. The class later undertakes geological work under Dr. Arthur Hollick of the Geological Department, and the study of metallurgical operations under Mr. Wray Annin Bentley of the Department of Metallurgy, the work in each case being done in Colorado, in and near Cripple Creek, Cañon City, Colorado Springs, and Pueblo.

### DEPARTMENT OF PHYSICS

The regular courses of instruction in the lecture-rooms and laboratories of the Department of Physics have been given during the present year. A certain amount of new apparatus has been added, and new experiments devised. The attendance of students on the various courses has been as follows:

#### LECTURE COURSES

Course I.—General Physics, Light and Heat (first half-year), Sound and Electricity (second half-year).
Prof. Rood and Mr. Gordon.
First-Year Class (except students in the School of
Architecture)
Course III.—Units and Measurements (first half-year), Exact Electrical Measurements (second half-year).
Prof. Hallock.
Second-Year students in the Schools of Mines, Chem-
istry, and Engineering

## LABORATORY COURSES

			First Class.	Second Class.
Course in Minin	g Engineeri	ng		25
" " Civil	"			16
" " Electr	ical "			36
" " Mecha	ınical "		28	20
" " Chemi	stry "			7
Students engage	d in special	research work (fourth		•
year)				3
Students engage	d in special	research work (third		•
year)				1
Students makin	g good de	ficiency in entrance		
laboratory	work			- 35
		from Schools of Ap-		00
		· · · · · · · · · · · · · · · · · · ·		171

## SCHOOL OF POLITICAL SCIENCE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

## SIR:

I have the honor to submit the following report of the work of the Faculty of Political Science for the scholastic year 1899–1900. During the year 281 students have taken courses of instruction under the Faculty of Political Science, of whom 24 were women. Of these 51 students were also registered in the Law School, 19 in the School of Philosophy, I in the School of Pure Science, 53 were members of the College, I was a member of one of the Schools of Applied Science, and 23 pursued studies in the Union Theological Seminary.

## RESIDENCE OF STUDENTS

New England States	18
Middle States	141
States North of the Ohio, East of the Mississippi	22
States South of the Ohio, East of the Mississippi	13
States West of the Mississippi, East of Rockies	15
States West of Rockies, on Pacific Coast	3
Canada	2
Foreign Countries	14
Students in Columbia College	53
	281

### DEGREES OF STUDENTS

Of the 281 students taking courses in the School of Political Science, 197 held college degrees on entrance, and 53 had completed the Junior year of the College. Of the 197 students holding college degrees upon entrance,

146	had	the	degree	of	Bachelor	of	Arts.
2 I	"	4.6	"	"	"	"	Science.
15	"	"	"	"	"	"	Philosophy.
9	"	"	"	"	"	"	Letters.
6	"	44	44	"	"	"	Laws.
5	"	"	"	"	"	"	Divinity.
1	"	"	"	"	"	"	Literature.
1	"	"	44	"	"	46	Sacred Theology.
44	"	44	"	"	Master	"	Arts.
3	"	44	"	"	"	"	Science.
I	"	"	"	"	"	"	Laws.
2	"	"	"	"	"	"	Philosophy.
2	"	"	"	"	Doctor	"	Philosophy.
2	"	"	"	"	"	"	Laws.
1	"	"	"	"	"	"	Medicine.

Deduct 62 for students holding more than one degree.

197

#### INSTITUTIONS REPRESENTED

Students in the School received their degree, or degrees, from the following institutions:

Acadia University	2
Adelphi College	
Adrian College	
Allegheny College	
Amherst College	
Beloit College	I
Blackburn University	I
Boston University	4
Brown University	7
Bryn Mawr College	

Cambridge Episcopal Theological Seminary	)
Carleton College	I
Centre College (Ky.)	1
Cincinnati Law School	I
Colgate University	2
College of the City of New York	22
Columbia University	45
Cornell College (Iowa)	1
Cornell University	5
Cumberland University	I
Curry University	I
Dartmouth College	I
Drew Theological Seminary	2
Earlham College	I
Franklin and Marshall College	2
Hamilton College	2
Harvard University	11
Hastings College	I
Illinois Wesleyan University	3
Indiana University	2
Iowa State College	2
Iowa State University	I
Johns Hopkins University	3
Keiogijuku University, Japan	4
Knox College	1
Lafayette College	I
Leland Stanford, Jr., University	5
Lenoir College	2
Marietta College	1
Massachusetts Institute of Technology	I
Mercer University	I
Mt. Union College	4
Nashville University	1
Nevada State University	1
New York Law School	2
New York University	4
Northwestern University	I
Notre Dame University	I
Ohio University	I
Ohio Weslevan University	3

Pennsylvania College 1
Princeton University 3
Roanoke College 2
Sheffield Scientific School 1
Smith College 2
St. Francis Xavier College 2
Syracuse University 7
Tokyo Semonggaho College, Japan 1
Toronto University 1
Trinity College (Conn.)
Trinity College (N. C.)
Trinity University 1
Union University 1
University of California 2
University of Chicago 2
University of Colorado 1
University of Doshisha, Japan
University of Georgia 2
University of Kansas 2
University of Michigan 5
University of Minnesota 4
University of Naples 1
University of Nebraska 2
University of North Carolina 2
University of Omaha 1
University of Paris
University of Rochester 1
University of Texas 2
University of Vermont
University of Wisconsin
Vassar College 1
Wabash College 1
Wellesley College 1
Wesleyan University 5
Western Reserve University 1
Williams College 7
Women's Medical College (N. Y.) 1
Yale University
Total number of degrees259
Total number of degrees259

Inasmuch as we have, at Columbia, made the beginning of the Senior year the commencement of the University work, we must add to the 197 students having degrees, the 53 other students who have completed the Junior year. There are then 250 University students in full standing who have done work during the present year under the Faculty of Political Science.

#### DISTRIBUTION OF STUDENTS

	History.	Public Law.	Economics.	Deduct.	Total.	
I Students primarily registered in Faculty of Political Science: A Graduates taking their major in B Non-Graduates	13 42 38	S 17 26	40 60 52	45 66	61 74 50 185	
culties:  A Graduates in the professional schools  ""non-professional schools  B Non-Graduates in the College  ""in the professional schools  ""in the non-professional	I	43 2 13	14 22 3 5	43 10 2 15	4I 24 4 II	
schools	2	2	11	5	10	

Total of all graduate students	146
Total of all non-graduate students	111
Total of all female students	24
Total enrollment of all students	28T

#### AGE OF STUDENTS

18	year		3
19	"	I	0
20			3
2 I	"	2	1
22	"	2	7
23	"		5
24	"	r	9
25	: "		5

28 "	culty of Political	7 10 7 7 3 4 5 1 2 1 2 1 1 1	129 152
Total,	• • • • • • • • • • • • • • • • • • • •		281
COURSES (	F INSTRUCTION	N	
GROUP I.—HISTORY A	ND POLITICAL	PHILOSOP	ΗY
A.—Euro	pean History		
	Courses.	Hours per Week.	Total Number of Stu- dents.
Prof. Osgood 1. History History	y 6. of Great Britain	2	2 I
Profs. Robinson and Osgood 2. Histor Metho	y 10. ds of Historical		ear
Prof. Robinson 3. History			10
Prof. Robinson 4. History	eformation	2	28
Prof. Robinson 5. History	val Institutions.	2 { 1st half-y	
Prof. Sloane 6. History		l 2 ∫ 2d half-ye	7 ear
Contin Prof. Sloane 7. History	ental History	} 2 ∫ 1st half-ye	6 ear
	of Napoleon	2	7

#### B.—American History

Instructor.	Courses.	Hours per Week.	Total Number of Stu- dents.
Prof. Sloane 1	History 30. Transitions in American History	2	51
Prof. Burgess 2.	History 31.		-
Prof. Osgood 3.	American Colonial	. 2	67
Prof. Sloane 4.	History 21	2d half-ve	25 ar
	History 34.	2	6
Prof. Dunning 5.	History 35. Civil War in Recon- §	ıst half-ve	ear
Don't Orace 1	struction	2	13
Prof. Osgood 6.	Seminar	I	7
Prof. Dunning 1.	C.—Political Philosophy History 40. Political Theories LIC LAW AND COMPAR	2 ATIVE JU	40 RIS-
	PRUDENCE		
_	A.—Constitutional Law		
Prof. Burgess 1.	Constitutional Law	2	51
Prof. Burgess 2.	Public Law 5. Seminar	1	23
	B.—International Law		J
Prof. Moore 1.	Public Law 6. History of Diplomacy	ıst half-ye	ear 10
Prof. Moore 2.	Public Law 7. History of American (	2d half-ye	
Prof. Moore 3.	Diplomacy ( Public Law 8.	2	15
	International Law	2	48
Prof. Moore 4.	Public Law 10. Seminar	2	7
•			

#### C.—Administrative Law

	C Auministrative Law		
Instructor.	Courses.	Hours per Week.	Total Number of Stu- dents.
Prof. Goodnow	. Public Law 16. Administrative Law 2. Public Law 17.	2	20
D1, 1 annotter 1	Municipal Govern-	2d half-ye	ar
Prof. Goodnow	ment Public Law 18.	2	4
Prof. Goodnow	Law of Taxation  Public Law 19.  Municipal Corpora-	I	7
Prof. Goodnow	tions	I	5
	Seminar	I	3
GROUP III	-ECONOMICS AND SOCIA	L SCIENC	E
A.—	Political Economy and Find	nce	
Prof. Mayo-Smith	Practical Political Economy	3	65
	Money and Trade	2d half-ye	ar
	Readings in Marshall's Principles of Econom-	3	40
Prof. Seligman	ics	I	8
Prof. Seligman	Science of Finance 3. Economics 5.	2	54
Deed Colimen	Industrial History of the United States	2	26
	4. Economics 7. Railroad Problems	2d half-ye 2	25
Prof. Clark	S. Economics 9. Static Laws of Distri-		
Prof. Clark	bution		23 ear
	tribution	2	22
	7. Economics 11. Socialistic Theories	ist half-y	35
	B. Economics 12. Social Reforms	2d half-ye 2	ar 33
Profs. Seligman and Clark	o. Economics 14.		
	Seminar in Economics	2	2 I

#### B.—Sociology and Statistics

Instructor.	Courses.	Hours per Week.	Total Number of Stu- dents.
Prof. Giddings 1.			-6
Dr. Ripley 2.	Principles of Sociology	2 2d half-ye	
Di. 10picy 2.	Racial Demography	2	11
Prof. Mayo-Smith 3.		∫ıst half-ye	
Dung Mann Cmith .	Statistics and Sociology	2 ad half vo	
Prof. Mayo-Smith 4.	Theory of Statistics	2d half-ye	
Prof. Giddings 5.		ıst half-ye	
	Social Evolution	2	<b>5</b> 9
Prof. Giddings 6.	Sociology 21.	( ad half wa	
	Progress and Democracy	20 nan-ye	49
Prof. Giddings 7.	Sociology 22.		79
	Pauperism and Chari-		ear
Doof Cillian 0	ties	2	
Prof. Gladings 8.	Sociology 23. Crime and Penology	20 nair-ye	ar 19
Dr. Bayles 9.	Sociology 24.	2	19
,	Ecclesiastical Organi-		
Dest Man Carlo	zation	I	
Prof. Mayo-Smith 10.	Laboratory Work in	hi-weekly	
	Statistics	2	8
Prof. Giddings11.	Sociology 30.	bi-weekly	
	Seminar in Sociology	2	35

#### WORK IN THE SEMINARS

#### SEMINAR IN EUROPEAN HISTORY

Professor Robinson. I hour a week. 8 members.

The year has been devoted to a study of the position of the Church in the 12th and 13th centuries. Papers were read as follows:

Ecclesiastical Elections in the 12th and 13th	
Centuries H. G. Plum.	
The Practical Aspects of the Sacramental Sys-	
tem James T. Shotwel	l.

#### SEMINAR IN AMERICAN COLONIAL HISTORY

Professor Osgood. I hour a week. 7 members.

In connection with this Seminar and History 32, the following Masters' Theses have been prepared, read, and discussed:

Governor Id	ohn Winthrop	as a Represen-
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tative of Puritanism...... Howard Pretzfeld.

Rhode Island as a Corporate Colony.... Rudolph A. Seligmann.

The New England Confederacy...... Charles A. Strauss.

The New England Confederacy..... Emma L. Reed.

The Massachusetts Town..... Anna L. Moore.

The Ecclesiastical Policy of Massachu-

setts during the 17th Century..... S. M. Smith.

The Founding of New Hampshire..... Sidney L. Teven.

The Establishment of the Boundaries of

New Hampshire..... Alpheus Winter.

Maryland as a Proprietary Province.... Alex. L. Strouse.

Virginia as a Royal Province...... C. Royall Frazer.

#### SEMINAR IN LATER EUROPEAN HISTORY

Professor Sloane.

The work in History 15 and History 34 is in the nature of Seminar work. The following are the subjects discussed, upon which papers have been presented:

Hardenberg's Policy..... H. G. Plum.

Nativist Parties..... L. D. Scisco.

The Napoleon Papers of Lord Ashburnham.. E. E. Sperry.

Count Philip Stadion..... Jas. T. Shotwell.

St. Domingo and the French Revolution.... E. P. Tanner.

Napoleon's Eastern Policy...... A. L. Dennis.

The Treaty of Tilsit..... Miss I. Davidson.

The Secularization of Ecclesiastical Estates

after Campo Formio..... E. E. Nichols.

European Politics and the War of 1812..... L. Galloway.

#### SEMINAR IN CONSTITUTIONAL LAW

Professor Burgess. I hour a week. 23 members.

The work in the Seminar has been the Historical and the Case Study of the Fourteenth Amendment to the Constitu-

tion of the United States, and of the Clause prohibiting a State from impairing the obligations of contracts. Each member of the Seminar has prepared a thesis upon a given point in these Provisions, and has participated in the discussions upon all of the points treated.

#### SEMINAR IN DIPLOMACY AND INTERNATIONAL LAW

Professor Moore. 2 hours a week. 7 members. The following papers have been read:

The Treaty-Making Power in the United States,	F. C. Averill.
Amelioration in the Practices of War	W. P. Bordwell.
Nationality	W. W. Cook.
Foreign Policy of the Second Empire	S. P. Duggan.
The Trent Case	T. Le G. Harris.
Conflict of Federal Statutes and Treaties	J. C. Logan.
Diplomatic Relations with the Far East	J. O. Spencer.

#### SEMINAR IN ADMINISTRATIVE LAW

Professor Goodnow. I hour a week. 3 members.

The work of this Seminar has been in the main devoted to the study of the history and development of Colonial Administration. Papers were read upon Colonial subjects by Mr. Abell and Mr. Gardner. In addition, Mr. Bowman has been engaged in an investigation of the powers and duties of State Boards of Charities and Corrections.

#### SEMINAR IN POLITICAL ECONOMY AND FINANCE

Professor Seligman. 2 hours bi-weekly. 21 members. The subject of the Seminar during the first term was the theory of Economic Materialism; during the second term, the Taxation of Corporations. Each member of the Seminar also made a report at each meeting on current periodical literature in Economics. The following countries were discussed: United States, England, France, Italy, Russia, Sweden, and Japan.

Papers were read as follows:

The Clothing Trade	Mr. Pope.
Industrial Conditions in the Southern States	Mr. Thompson.
The Origin of Materialism and the Materialistic	
Interpretation of History	Mr. Lazard.
Economic Materialism of Karl Marx	Mr. Whitaker.
Economic Materialism of Loria	Mr. Prevey.
The Critics of Marx	Dr. Simkhovitch.
Economic Interpretation of the Reformation	Mr. Murfin.
Economic Basis of the English Revolution	Mr. Thompson.
Economic Basis of the French Revolution	Mr. Johnson.
Taxation of Corporations in Pennsylvania	Mr. Rosensohn.
Taxation of Corporations in New York	Mr. Hawkins.
Taxation of Corporations in New Jersey	Mr. Cardozo.
Taxation of Corporations in Indiana	Dr. Weatherly.
Taxation of Corporations in Ohio	Mr. Clark.
Taxation of Corporations in Massachusetts	Mr. Meeker.
The Labor Question in Japan	Mr. Miki.
Women in the Clothing Industry	Miss Hurd.
Decentralization of Industry	Mr. Britt.
Economics in Japan	Dr. Spencer.

#### SEMINAR IN ECONOMIC THEORY

Professor Clark. 2 hours bi-weekly. 21 members. Papers were presented on the following subjects:

Industrial Centralization. Monopolies.

The Tobacco Trust.
The Organization of Labor.

Trade Unions.

Factory Laws.

Trade Restrictions.

Patents.

Insurance.

Cost and Value.

Theories of Henry C. Carey.

Socialism in the Nineteenth Century.

Municipal Socialism.

Karl Marx.

The Industrial Condition of Japan.

#### STATISTICAL LABORATORY AND SEMINAR

Professor Mayo-Smith. 2 hours bi-weekly. 8 members. The students were engaged during the first half-year in practical exercises analyzing the population of the United States according to race, nationality, sex, age, conjugal condition, immigration, and occupation. Special studies were made and the results presented in the Seminar. During the second half-year, the same students engaged in exercises in the theory of probabilities, averages, mean error, and the mathematical theory of statistics.

As a practical piece of work, the students of the Seminar analyzed the figures of the Charity Organization Society for the last ten years.

#### SEMINAR IN SOCIOLOGY

Professor Giddings. 2 hours bi-weekly. 30 members. The first half-year was devoted to a study of methods. Special exercises were assigned in the application of criticising statistical methods, and problems of the American population. The second half-year was taken up by the reading and discussion of original papers as follows:

An Investigation of the Colored Population	
of Beaufort County, South Carolina	Mr. McAlpin.
An Account of the Efforts for the Educa-	
tion of the Negroes from 1865 to 1870	
Church Philanthropy in New York	Mr. Floyd Appleton.
The Shaker Community and Some of its	
Principles	Mr. Dammes.
The Problems of the Rural Population of	
the United States	Mr. Prevey.
Sociological Aspects of the Mormon Colo-	
nization of Utah	Mr. Lunn.
Boys' Clubs	Mr. Abram Lipsky.
Imitation as a Factor in the Development	
of American College Curricula	Mr. Sears.
A Study of Tenement-House Construction	
in its Relation to Social Problems	Mr. Cocks.

#### WORK OF FELLOWS

During the year, the following have held Fellowships in subjects falling under the jurisdiction of this Faculty:

I. William Maitland Abell . . Political Science.

Yale University, A.B., 1887; A.M., 1898.

Columbia University, graduate student, 1898-9.

Mr. Abell has done his work mainly in the Department of Public Law. He has been engaged in the study of English Colonial Administration, and read a report before the Seminar in Administrative Law on "The History of the English Administration of India." He also attended the Seminar in Constitutional Law, and worked there upon the cases decided by the Supreme Court in its interpretation of the Fourteenth Amendment to the United States' Constitution.

2. George Sheldon Bowman . Public Law.

Roanoke College, A.B., 1894.

Columbia University, Scholar in Jurisprudence, 1897–9.

Mr. Bowman has done his work mainly in the field of American Administration. He read a paper before the Seminar in Administrative Law upon "The Powers and Duties of State Boards of Charities and Corrections." He also was engaged in the Seminar in Constitutional Law upon the Fourteenth Amendment to the United States' Constitution.

3. William Henry Fry . . . Schiff Fellow in History. Columbia University, A.B., 1897; A.M., 1898.

Mr. Fry has been devoting his attention, under the direction of Professor Osgood, to the original sources of the history of New Hampshire during the time that it was a Royal Province.

4. Thomas Le Grand Harris . International Law. University of Indiana, A.B., 1892; A.M., 1895. Harvard University, A.M., 1899.

Mr. Harris was compelled to resign his Fellowship at the beginning of the second half-year owing to ill-health. He had nearly completed, at the time of his resignation, a thesis entitled "Anglo-American Relations, 1861."

5. Warren Lanning Hoagland, Jr. Sociology.

Wesleyan University, A.B., 1898.

Columbia University, Scholar in School of Political Science, 1898–9.

Mr. Hoagland has attended the Seminar in Sociology throughout the year, and has continued his work on the history of the Poor Law of New Jersey, begun in 1898-9. He has completed also the study of the Social Settlements of New York City, making a full report thereon. In connection with the courses on Racial Demography given by Dr. Ripley, he has prepared numerous excellent sociological maps of the population of the United States.

6. Harry Grant Plum . . . European History.

Iowa State University, Ph.B., 1894; A.M., 1896.
Columbia University, Scholar in History, 1898–9.

Mr. Plum was engaged in the Seminars of European
History. He presented reports on "Ecclesiastical Elections in the 12th and 13th Centuries," on
"Scholasticism" and on "Relations of Austria and Prussia in the Revolutionary Epoch."

7. Jesse Eliphalet Pope . . Economics.

University of Minnesota, B.S., 1895; M.S., 1897.

Columbia University, graduate student, 1897-8;

Fellow in Economics, 1898-9.

Mr. Pope devoted most of his time during the year to further research work connected with his Doctor's Dissertation on "The Clothing Industry in New York." He has done field work not only in New York City but also in other cities of the State, and has made substantial progress in his

investigations. He submitted a part of the results in the Seminar in the form of a paper. He has also taken part in the ordinary sessions of the Seminar and has reported on periodical literature.

8. Comadore Edward Prevey . Economics.

University of Wisconsin, B.L., 1893.

Yale University, graduate student, 1897-8.

Columbia University, Fellow in Economics, 1898–9.
Mr. Prevey has attended the sessions of the Seminar in Economics, has made a report on periodical literature, and prepared an extensive paper on "The Economic Materialism of Loria." He has also submitted from time to time chapters of his forthcoming Dissertation on "The Development of Agriculture."

9. Charles Lee Raper . . . American History. Trinity College (N.C.), A.B., 1892.

Columbia University, Scholar in History, 1898-9. Mr. Raper has been engaged at Raleigh and else-

where in North Carolina in studying the original documents bearing upon the early history of the State.

10. James Thomson Shotwell . European History. Toronto University, A.B., 1898.

Columbia University, Scholar in History, 1898-9. Mr. Shotwell has done his work in connection with the Seminar in Mediæval European History, and presented an elaborate report on "The Practical Aspects of the Sacramental System."

II. William Roy Smith . . American History.

University of Texas, A.B., 1897.

Columbia University, A.M., 1898.

Mr. Smith has attended the Seminar in American Colonial History, and has been engaged at Columbia and Charleston, S. C., in the study of the history of the Colonial period of South Carolina.

Edwin Platt Tanner . . American History. 12. Columbia University, A.B., 1897; A.M., 1898. Mr. Tanner has attended the Seminar in American Colonial History, and has been studying at Columbia, at Trenton and Newark, N. J., the documents bearing upon the Colonial history of New Jersey.

Political Economy. Holland Thompson 13. University of North Carolina, Ph.B., 1895. Mr. Thompson has attended the Seminars in Economics, where he has read two papers; one on "Industrial Conditions in the Southern States." and one on "The Economic Causes of the French Revolution." In addition to the reports on periodical literature, Mr. Thompson has devoted himself steadily to research work connected with his Doctor's Dissertation on "The Introduction of the Factory System in North Carolina."

#### WORK IN HISTORY, ECONOMICS, AND SOCIOLOGY AT BARNARD COLLEGE

Professor Giddings's course on the Principles of Sociology (Sociology 15), two hours a week throughout the year, was attended by fourteen regular students, and one optional student, making a total of fifteen students.

Professor Osgood's course on the Constitutional History of England (History 6), two hours a week throughout the year,

was attended by seven regular students.

Professor Clark's courses on Socialism (Economics 11), two hours a week, first half-year, and on Social Reform (Economics 12), two hours a week, second half-year, were attended by five regular students.

Professor Robinson's course in European History (History 11), two hours a week throughout the year, was attended by sixteen regular students, in first half-year, and

fifteen regular students, in second half-year.

#### PUBLICATIONS OF THE FACULTY

#### SERIES IN HISTORY, ECONOMICS, AND PUBLIC LAW

The Studies in History, Economics, and Public Law, under the editorial management of Professor Seligman, have been continued. During the year additional numbers of Volume XII have appeared as follows:

1st. History and Functions of Central Labor Unions.

By William Maxwell Burke.

2d. Colonial Immigration Laws. By Emberson Edward Proper. 3d. History of Military Pension Legislation.

By William Henry Glasson.

4th. History of the Theory of Sovereignty since Rousseau.

By Charles Edward Merriam, Jr.

The series has received widespread commendation. I append a few of the press notices which have been sent to Professor Seligman.

"The valuable series of studies in course of issue by Columbia College."—*Economic Journal*, III.

"The students of labor movements and social evolution owe a debt of gratitude to the university that encourages such admirable and exhaustive monographs on practical subjects."—Journal of the Department of Labor, Wellington, N. Zealand, Vol. VII, No. 77.

"Columbia University has added yet another to the lengthening list of valuable publications growing out of the efforts of its Faculty of Political Science. The character of the average thesis submitted for the doctor's degree in Germany and the United States is such as to lead one at times to doubt the utility of the whole scheme which brings forth such ridiculous mice. Columbia, in its department of political science, has, however, it must be confessed, set a new pace, which other universities find it hard to keep up with. It has turned out in the last few years a series of most valuable monographs, which not only give promise of good scientific work in the future on the part of the authors, but are present evidence of good work already done."—Municipal Affairs, III.

"The Faculty of Political Science of Columbia College, aided by the fellows, tutors, and graduates of that institution, are enlisted in independent lines of economic research which are resulting in a group of original publications, all characterized by the scientific and historical spirit, and evincing no ordinary acumen and accomplishment. Until recently but little has been done by the supposed masters of American economic research so effective as this work now emanating from recently graduated pupils of this school."—Social Economist, January, 1894.

"The Studies in History, Economics, and Public Law, which are edited by the Political Science Faculty of Columbia University, form an admirable collection of short monographs."—The Speaker, London.

"When such books are written in an American university the time is not far distant when the boasted superior thoroughness of German universities will be a tradition rather than a fact."— Hon. Frederick W. Holls.

#### POLITICAL SCIENCE QUARTERLY

The *Political Science Quarterly* is reported by the publishers to have made gratifying gains in circulation during the year, a fact which confirms the confidence we feel in the contributions of the *Quarterly* to the scientific discussion of politics.

#### ACADEMY OF POLITICAL SCIENCE

The Academy of Political Science held meetings throughout the winter which were devoted to the discussion of the domestic and foreign topics which were most prominently before the public mind. At one meeting a paper was read on "The History of the Relations of the United States to Samoa" by Professor Moore. At another meeting a paper was read by Mr. Sidney Brooks on "The Relations of England and the Boer Republics." This was followed by a discussion which was participated in by the Honorable Thomas G. Shearman and Mr. John Martin. At another meeting the Honorable Bird S. Coler read a paper on "The City of New York."

#### HISTORY CLUB

At the meetings of the History Club papers have been read by Professor Woodrow Wilson of Princeton University, subject: "States' Rights between 1850 and 1860"; by Mr. Paul Leicester Ford, subject: "The Land Politics of the United States"; by Prof. W. A. Dunning, subject: "Some Contrasts in Political Conditions between the End of the Eighteenth and the End of the Nineteenth Century"; by Mr. James Breck Perkins, subject: "Richelieu, his Early Career and Policy, particularly toward the Huguenots"; by Prof. Henry P. Johnston, of the College of the City of New York, subject: "The Suffrage in New York City Thirty Years after the Revolution"; and by Prof. Samuel M. Jackson, of New York University, subject: "A Characterization of Ulrich Zwingli."

The student members of the club have presented reports on their investigation of original authorities, and reviews on current historical literature, and Professor Osgood gave an account of his visit to the repositories of the archives of New York City.

#### POLITICAL ECONOMY CLUB

The Political Economy Club was organized in the fall of '99. Its purpose has been to give an opportunity for the informal discussion of such questions as may arise in connection with the more formal graduate work. While primarily devoted to economic and sociological problems, any questions of general interest in the field of political science may be discussed. All graduate students of the department of political science are eligible to membership.

Respectfully submitted, John W. Burgess,

Dean.

#### SCHOOL OF PHILOSOPHY

#### REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

There is submitted herewith the tenth annual report of the work of the Faculty of Philosophy, covering the academic year ending June 30, 1900. The usual statistical tables and summaries are appended to the report. The various courses of instruction and research offered by the Faculty, together with a statement of the attendance of graduate students upon each, are summarized in the accompanying tabular view marked A. A list of the University Fellows appointed in the departments falling under the jurisdiction of this Faculty, together with an outline of the special work of each during the year, will be found in the accompanying statement marked B. A list of the recommendations for University degrees, made during the year, so far as concerns students having their major subject under this Faculty, is given in the statement marked C.

During the year the number of students pursuing their studies either wholly or in part under the direction of this Faculty has been 382, an increase as compared with the preceding year of 61, or 19 per cent. The composition of the list of students is as follows:

<ol> <li>Candidates for the degree of Bachelor of Arts:         Seniors in Columbia College</li></ol>	69 38	107
Men	122	
Men	43	
Men " Teachers College	34	
Women " " "	14	
		213
3. Not included in the above classes		62
		382

In the above list are included, as in previous years, the Seniors in Columbia College, and in Barnard College who elected courses in Philosophy, Philology, or Letters as part of their work toward the degree of Bachelor of Arts. Hereafter, in consequence of the amendment to the Statutes, made pursuant to the recommendation of the University Council, adopted at a meeting held December 20, 1898, these students will no longer be included in the tables for the year.

For the purpose of completing the comparisons instituted in previous reports, and in order to make these compariprimary sons cover the full ten years of the Faculty's existence, the following figures of primary registration tion are inserted. They are subject to the explanations attached to this table in my last annual report:

	Number of Students	Prim	nary Regis-		
Year.	Taught.	t	ration.		
1890		(apparently)	27 + 9	women =	= 36
1891	92	"	55 + 5		= 60
1892	130	"	77 + I		= 78
1893	130	"	73 + 10		= 83
1894	165		83 + 12		= 95
1895	190		95 + 17		= II2
1896 .	227		108 + 22		= 130
1897	263		100 + 51		= 151
1898	255		121 + 37		= 158
1899	321		132 + 88		= 220
1900	382		157 + 85	" =	= 242

In arriving at a statement of the primary registration for the academic year 1899–1900, it is necessary, in order to establish a just comparison with previous years, to include the number of students from Teachers College who have taken one or more courses under the Faculty of Philosophy. On this basis the primary registration for the past year is as follows:

Students primarily registered in the Faculty of Philosophy 117 Students registered in Teachers College:

Men	40	
Women	40	
		80
Students registered in Barnard C	College	45
		242

Of the number of students enrolled under the Faculty, 20 were students in the theological seminaries of New York, admitted in accordance with the resolutions of the Trustees passed April 7, 1890. Of this number, 10 came from the Union Theological Seminary, 3 from the General Theological Seminary, 5 from the Jewish Theological Seminary, and 2 from Drew Theological Seminary.

The number of auditors enrolled during the year was 25, a decrease of 3 over 1898-9. Of this number, 3 attended courses in Education; 1, courses in French; 2, courses in German; 4, courses in Literature; 6, courses in Music; 5, courses in Philosophy; 2, courses in Psychology; 2, courses in Rhetoric.

The degrees held by the 220 graduate students were as follows:

Denne a similar a liberal an manage descri

Degrees signifying a liberal or general education:	
Bachelor of Arts	-
Bachelor of Philosophy	4
Bachelor of Science	5
Bachelor of Literature	0
Bachelor of Sacred Theology	I
	- 215
Degrees signifying a technical or professional education:	
Bachelor of Divinity	3
	7
	2
	- I
	- 13
Advanced Degrees:	-3
Master of Arts 5	Q
Mantan of Taxas	ī
Markon of Calana	4
TO	ī
	1
To a C TOI 'I I	2
	- 68
Total	296
Deduct for students holding more than one degree	76
bedact for stadents holding more than one degree	
	222
	220

#### INSTITUTIONS REPRESENTED

The 220 students holding degrees represented the following colleges and universities:

Adelphi College	1	Ohio State University	3
Adrian College	1	Oskaloosa College (Iowa)	I
Albion College	I	Pennsylvania College	1
Amherst College	6	Pennsylvania Military College	I
Ancien Elève des Facultés des		Pittsburg Female College	I
Sciences	I	Princeton University	3
Ancien Élève du Collége de		St. Francis Xavier College	3 8
France	I	Smith College	8
Antioch College	1	Southwestern University	I
Boston University	3	Leland Stanford, Jr., University.	5
Brown University	2	Swarthmore College	3
Bryn Mawr College	5	Syracuse University	I
Carleton College	Ĭ	Toronto University	I
Case School of Applied Science	1	Trinity College (Hartford, Conn.)	1
Central Pa. State Normal School	1	Union College	2
Coburn Classical Institute	I	Union Theological Seminary	I
Colgate University	2	Union University	I
College of the City of New York	29	University of California	I
Columbia University	49	University of Chicago	I
Cornell University	ΙÓ	University of Cincinnati	2
Dartmouth College	1	University of Doshisha	I
Delaware College	I	University of Kansas	1
De Pauw University	1	University of Michigan	I
Dickinson College	5	University of Minnesota	3
Hamilton College	Ī	University of Naples	I
Hamline University	I	University of Nashville	I
Harvard University	19	University of Nebraska	Ι
Hiram College	Í	University of Paris	I
Hobart College	I	University of Pennsylvania	Ι
Illinois Wesleyan University	1	University of Rochester	2
Indiana State University	I	University of Texas	I
Iowa State University	2	University of Vermont	3
Iowa Wesleyan University	I	Vassar College	4
Johns Hopkins University	I	Wake Forest College	I
Lafayette College	4	Wellesley College	4
Lake Forest University	1	Wesleyan University (Conn.)	6
Lenoir College	I	Williams College	1
London University	I	Wooster University (Ohio)	I
Massachusetts Institute of Tech-		Yale Law School	I
nology	I	Yale University	5
Middlebury College	I		
Newnham College	I		259
New York Law School	I	Deduct for duplication	33
New York University	7	_	
Northwestern University	7	Total	226

Number of Courses given during the year 1899-1900 by the several departments represented in this Faculty, as compared with those of the previous year, was as follows:

Department.	Number of Courses.	Increase.	Decrease.
English	9	3	_
Germanic Languages	14	I	_
Greek	6	_	3
Indo-Iranian Languages	9	4	_
Latin	13	3	_
Linguistics	Ī	_	_
Literature	7	_	2
Music	9	4	_
Philosophy and Education	10	_	I
Psychology and Anthropology.	1.4	2	_
Rhetoric	6		_
Romance Languages	II	_	4
Semitic Languages	ΙΙ		4
<b>0</b> 0			
Totals	120	17	14
		14	
Net increase		3	

In the following table is given a comparative statement of the enrollment under this Faculty since its foundation:

		1	1	1	1			<u> </u>	1	
	1890-1	1891-2	1892-3	1893-4	1894-5	1895-6	1896 <b>-7</b>	1897–8	1898-9	1899-1900
Total enrollment	92	130	130	165	190	227	263	255	321	382
Number holding degrees	52	56	62	92	120	147	131	165	197	220
Per cent	56.5	43.0	47.7	55•7	63.1	65.2	49.9	64.3	61.4	57.6
standing		41	58	55	51	62	7.1	6r	63	107
Per cent Not included in either of the	34.8	31.5	58 46.6	55 33·3	51 26.9	62 27·3	74 28.1	23.9	63 19.6	28.
above	8	33	10	18	19	17	58	29 11.8	6 <b>1</b>	55
Per cent	8.7	25.5	5.7	11.0	10.0	7.5	22.0	11.8	19.0	14.4

The number of Seniors in the College electing courses in Philosophy, Philology, and Letters each year has been as follows:

	1890-1	1891-2	1892-3	1893-4	1894-5	1895-6	1896-7	1897-8	1898-9	1899-1900
Number in Senior class Number electing studies in	49	50	71	70	49	56	59	49	53	93
Philosophy, Philology, and Letters	32	38 76.0	57 80.3	55 78.6	41 83.7	44 76.6	53 90.0	40 81.6	42 79.2	69 74•2

The total number of Seniors in Barnard College electing courses in the Faculty of Philosophy was 38, being 95 per cent. of the entire class. Their courses were distributed among the several departments as follows:

Classical Philology	6
English	I
French	7
German	6
Greek	6
Italian	9
Latin	6
Music	2
Philosophy and Education	34
Psychology and Anthropology	6
Rhetoric	3

The important Faculty legislation of the year is con-Faculty tained in the following extracts from the Min-Legislation utes of the Faculty:

(Nov. 10, 1899)—Resolved, That the several courses given at the Union Theological Seminary in the Philosophy of Religion and in Christian Ethics, be added to those now accepted in partial fulfilment of the requirements for the degrees of Master of Arts and Doctor of Philosophy.

(Nov. 10, 1899)—Resolved, That such courses given in the Summer Session of the University, as cover the ground of the corresponding regular courses under the jurisdiction of this Faculty, be counted in partial fulfilment of the requirements for the higher degrees; each such course to be counted as the equivalent of a course of one hour weekly throughout the year.

(Feb. 9, 1900)—Resolved, That the following regulations governing students not candidates for a degree be adopted by this Faculty:

Students of mature age who give evidence of earnest purpose and special fitness may register for any of the courses under the control of this Faculty without becoming candidates for a degree. By special fitness, in the case of students not holding a first degree, is meant an equipment for the course intended to be taken such as would justify candidacy for a degree if the preliminary requirements could be fully met.

Of such fitness the head of each department under which the applicant wishes to study is to be the judge, and his approval must be expressed in writing to the Dean of the Faculty.

Such students are expected to pursue seriously the work of the course for which they are enrolled, and will be required to pass examinations therein at the discretion of the professor giving the course. Such students may be excluded from any course which they are following if the instructor in charge be satisfied that proper attention is not being given to the work of the course.

Persons desiring to enroll for the purpose of listening to the lectures of a given course for such profit as may come therefrom are required to enroll as auditors. Auditors will not be examined, and neither are they given the status of students.

(Apr. 12, 1900)—Resolved, That the following majority report on the question as to whether any changes are desirable in the existing regulations relating to the requirements in Latin, French, and German, applicable to candidates for the degree of Doctor of Philosophy, be adopted as the sense of the Faculty:

That in their judgment no changes in the existing regulations are necessary or desirable. As to the opinion advanced by a minority of the Committee to the effect that a change should be made in the rule relating to the subject of Latin, the undersigned believe that the present form of procedure is such as to obviate any hardship in the case of candidates whose major subject involves no knowledge of Latin whatsoever; and they believe also that the general statement as it now stands in the Faculty's official announcement is more in keeping with the history and traditions of a Philosophical Faculty than would be the statement which has been proposed as a possible substitute therefor.

(May 11, 1900)—Resolved, That the following report and resolutions be adopted as the sense of the Faculty:

The undersigned, members of a committee appointed pursuant to resolution of the Faculty adopted April 12, 1900, "to consider and report what changes, if any, are desirable in the regulations concerning the admission of

students as candidates for the higher degrees," respectfully submit the following report and recommendations:

It seems desirable that some distinction should be drawn between students who are admitted to pursue studies under the Faculty of Philosophy as a matter of right, because of compliance with the general regulations established by the University Council, and those students who are deemed competent by their instructors to go forward to the degree of Doctor of Philosophy. It is felt to be especially important that the ability to read the modern languages and Latin, which are so often the necessary instruments of research, should be tested at the beginning rather than at the close of the candidate's period of university residence.

These matters have been so often the subject of discussion, formal and informal, in the Faculty, that they need not be considered at length in this report. The committee propose that the following supplemental regulations should be adopted to govern candidates for the degree of Doctor of Philosophy pursuing studies under the Faculty of Philosophy:

In the Faculty of Philosophy admission as a regular student or as a candidate for the degree of Master of Arts does not admit to candidacy for the degree of Doctor of Philosophy. Only those students are admitted to candidacy for the degree of Doctor of Philosophy who

- I. Are recommended for such candidacy by the heads of the departments in which their major and minor subjects of study lie;
- 2. Are certified as to their ability to read French and German by the heads of those departments;
- 3. Are certified as to their ability to read Latin by the head of that department; provided, that students whose major subject is psychology, anthropology, education, or music shall not be required to meet this test when it is certified by the professor in charge of their major subject that an ability to read Latin is not necessary for the proper prosecution of their researches.

When a student is admitted to candidacy for the degree of Doctor of Philosophy he shall be credited with his past period of university residence, or with so much thereof as may be determined by the Dean and the professor in charge of the candidate's major subject.

The committee report the following resolutions and recommend their adoption:

Resolved, That the supplemental regulations proposed by the committee appointed April 12, 1900, to govern candidates for the degree of Doctor of Philosophy, be adopted.

Resolved, That the Secretary of the Faculty be requested to transmit a copy of these supplemental regulations to the University Council and to ask their approval.

(May 11, 1900)—Resolved, That the general question of the administration of the examinations for the doctor's degree be referred for consideration and report to a committee of five members. The President appointed as such committee: The Dean, Professors Cattell, Thomas, Price, and Gottheil.

Statistics are appended which show some of the main features of the work of the Faculty since its 1890-1900 organization:

NUMBER OF FELLOWS APPOINTED EACH YEAR
CLASSIFIED ACCORDING TO DEPARTMENTS

- CEASSITIED ACCO	LASSIFIED ACCORDING TO DEPARTMENTS											
	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899		
Division of Philosophy and Psychology: Philosophy. Psychology. Anthropology. Education			2  I	I	2  I	I I I	1 2	1 2	I	I I	11 7 1 5	
Division of English and Literature: English. Literature Rhetoric.		1		I I	ı	I I	1			1	6 5	
Division of Classical Philology: Greek Latin Comparative Philology			1	ı ı	 I 2	 I 2	2 1	 I	I 1 2	1	4 8 9	
Division of Modern European Lan- guages: Germanic Languages Romance Languages					ı			I 2	I	I 2	7 9	
Division of Oriental Languages: Semitic Languages Indo-Iranian Languages		1		1		1					3 2	
Department of Music:	• • • •											
	0	5	8	8	9	10	8	10	10	9	77	

## DEGREE OF DOCTOR OF PHILOSOPHY, MAJOR SUBJECTS CLASSIFIED ACCORDING TO DEPARTMENTS

	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	
Division of Philosophy and Psychology: Philosophy Psychology Anthropology Education	ı 			3	ı 	····		4 2	3		9 6 8
Division of English and Literature: English. Literature Rhetoric.									3		6 3
Division of Classical Philology : Greek . Latin . Comparative Philology					1				2	I	4 4
Division of Modern European Languages: Germanic Languages Romance Languages					::::					I	3 3
Division of Oriental Languages: Semitic Languages Indo-Iranian Languages	ı	::::	ı			2		1	1	ı	7
Department of Music:											
	4	1	2	5	4	4	2	9	14	9	54

# DEGREE OF DOCTOR OF PHILOSOPHY, MINOR SUBJECTS CLASSIFIED ACCORDING TO DEPARTMENTS

		·				_				,	
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	
Division of Philosophy and Psychology: Philosophy Psychology Anthropology. Education	1 2	2	 I	2	I	1		ī	5 3 3 5	2  1 3	18 8 5
Division of English and Literature: English. Literature Rhetoric.			1				1	1	1	I	2 5
Division of Classical Philology: Greek Latin. Comparative Philology	2		1	1 2	2 I	I	   	I I	3	1	8
Division of Modern European Lan- guages: Germanic Languages Romance Languages	1	  ::::		2		1		I	1 4	2	10
Division of Oriental Languages: Semitic LanguagesIndo-Iranian Languages			2			2	::::	2 I	I	2 I	9
Department of Music:		ļ		<b> </b> -	• • • •						
	8	2	7	9	6	8	5	16	27	16	104

## DEGREE OF MASTER OF ARTS, MAJOR SUBJECTS CLASSIFIED ACCORDING TO DEPARTMENTS

	1891	1892	1893	1804	1895	1896	1897	1898	1899	1900	
Division of Philosophy and Psychology: Philosophy Psychology Anthropology. Education				ı		7	4 1	7 4	6	3 1 	27 3 
Division of English and Literature: English. Literature Rhetoric.		1	1	1 1	1	1 2	2 7		7	3 8	13 34
Division of Classical Philology: Greek. Latin. Comparative Philology.	1	1	1		1	2		1	3	4 5	10
Division of Modern European Languages: Germanic Languages	2									3	14
Division of Oriental Languages: Semitic Languages Indo-Iranian Languages					2		3		2	I	8 2
Department of Music:									ı	1	2
	5	3	5	5	5	14	19	25	32	42	155

# DEGREE OF MASTER OF ARTS, MINOR SUBJECTS CLASSIFIED ACCORDING TO DEPARTMENTS

										1	
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	
Division of Philosophy and Psychology: Philosophy Psychology. Anthropology. Education.	3				3 1	8 1	2 1 2	8 3 2	1 4 3 10	3 3 1 18	30 13 9
Division of English and Literature: English Literature Rhetoric.	3	2	3		ı		2 7 1	7 11 1	4 9 4	6	31 43 6
Division of Classical Philology: Greek Latin Comparative Philology	2		4 2		I		I 	3 4	5 <b>2</b>	8 6	34 18
Division of Modern European Lan- guages: Germanic Languages Romance Languages	2	1	z z	3		3	4 6	3	1 3	7 2	25 15
Division of Oriental Languages: Semitic Languages	z				2 2		5 2	3 4		2 2	16 12
Department of Music:											
	14	8	12	13	21	28	37	52	49	69	293

TOTAL NUMBER OF HIGHER DEGREES CONFERRED EACH YEAR

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	
	-		-			<u> </u>			—	—	_	
Ph.D.: Men Women		4.						2	7 2	13	9	51 3
A.M.: Men Women		4 1			4		12 2	16 3	18 7	20 12	27 15	114 41 —

The following table, taken from the records of the Bursar, shows the primary registration under the Faculty of Philosophy from its foundation, each student being classified under the department in which his major or chief subject of study lay. There are no records in existence to check these figures with those presented in the several annual reports, but they are instructive of themselves.

	7.900-T	T80I-0	1802-2	1802-4	1804-5	1805-6	1806- <b>2</b>	180m-8	1808-0	1899-1900	
	1090-1	1091-2	1092-3	1093-4	1094-3						
Division of Philosophy and Psychology: Philosophy and Edu- cation Psychology and An-	25	14	12	40	43	48	33	33	93	76	417
thropology	2	1	1	1	2	8	4	1	8	7	35
Division of English and Literature: English Literature Rhetoric	5	7	7 3	12 1	2 2	14 3 1	3 12 1	6 11	4 8 1	8 12 2	68 52 6
Division of Classical Philology: Greek	6 2	5	2 2	3 3 1	13 8	2 4	2 5	2 6	3 10	9	47 51 1
Division of Modern Eu- ropean Languages: Germanic Languages Romance Languages	1	2 2	5	6 4	4 6	16 3	2 2	3	2 4	10 5	51 30
Division of Oriental Languages: Semitic Languages Indo-Iranian Languages	4	10	9	6	6	3	7	5	4	ı	54 5
Department of Music Collegiate Course for Women							32	19	14	8	73 1
11 0/126/12											
	46	42	41	77	86	103	104	92	151	149	891

#### Auditors, 1892-1900

	1892-3	1893-4	1894-5	1895-6	1896-7	1897-8	1898-9	1899–1900	
Division of Philosophy and Psy- chology: Philosophy and Education Psychology and Anthropology				8	12 1	5 2	4 1	5 2	39
Division of English and Literature: English Literature Rhetoric.	2 4				2 I	12 1	2 2 4	8 1	22 12 12
Division of Classical Philology: Greek	ı 	2	2		I	I			5 2
Division of Modern European Lan- guages: Germanic Languages Romance Languages	44	2	I	I		2	3 1	2	13
Division of Oriental Languages: Semitic Languages Indo-Iranian Languages			2						3
Department of Music					2		5	5	12
-	14	7	8	14	21	23	22	23	132

The fact that the mode of registering and classifying students has necessarily been altered several times during the rapid developments of the past decade, makes it impossible to present further comparative statistics on topics which might be of general interest. The tables given above, however, sufficiently show that the work of the Faculty has been carried on with effectiveness and strength, and that the subjects of study and investigation embraced under its jurisdiction have not failed to attract a very considerable body of earnest and capable students.

Respectfully submitted,

NICHOLAS MURRAY BUTLER,

Dean.

June 30, 1900.

# Statement A

# COURSES OF INSTRUCTION, 1899-1900

SHOWING THE ATTENDANCE OF GRADUATE STUDENTS, UNDERGRADUATE STUDENTS, AUDITORS, AND THE TOTAL ATTENDANCE UPON EACH

Instructor.	Courses,	Hours per Week.	Graduate Students.	Under- graduate Students.	Audit- ors.	Total Num- ber Attend-
	PHILOSOPHY AND PSYCHOLOGY					ing.
	A.—Philosophix and Education					
	I.—Philosophy I. Historical and Cuitical Lutroduction to Dhilosophy	60	01	44	v	20
*		0 4 4 6	1020	15	) 	26 17
		N 61 6	<b>-</b> 9	4 6		10
	<ul> <li>IX. Applied Logic and Scientific Method</li> <li>Seminar, Special Topics of Investigation</li> <li>Seminar in Ethics</li> </ul>	Спн	11 7	, C		111
	II.—Education					
	II. Principles of Education Seminar, Special Topics of Investigation	2 1	112	38	9	156 13
	B.—PSYCHOLOGY AND ANTHROPOLOGY					
	IP $sychology$			-		
Instructors of the Division Prof. Cattell	I. Introduction to Psychology II. Experimental Psychology, introductory course	0 0 7	3 6	56 6	3	35
		4 67		12		12
		3	3	<u>σ</u>		O 10
	VIII. Physiological Fsychology XII. Research in Psychology and Anthropology	ec	4	4		4 4

214496	71 11 11 7 01	8 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	16
74		H	
Ç	800 N	∞нн ∞ н <b>4</b> пло	3.4
- r 4 4 a w	9 2 2 5 5 10	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9 10
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II.—Anthropology I. Anthropology, introductory course II. Statistical Study of Variation III. Ethnology IV. Physical Anthropology V. Physical Anthropology, research work VI. North American Languages CLASSICAL PHILOLOGY	XI. Plato and Aristotle XIII. Aristotle's Poetics; plays XIVI. New Testament Greek XVIII. Introduction to the Study of Greek Archæology; sculpture XXI. Greek Epigraphy Greek Seminar	III. Juvenal; Martial IV. Terence; Plantus V. Introduction to the Study of Latin Inscriptions VI. Horace VIII. Latin Manuscripts X. The Private Life of the Romans XII. Roman Epigraphy, advanced course XIII. Persius XIX. Seneca XXIII. Prose Composition, advanced course XXXII. Prose Composition, advanced course XXXII. Prose Composition, advanced course XXVII. Prose Composition, advanced course XXVIII. Prose Composition, advanced course XXVIII. Prose Composition, advanced course XXVIII. Prose Composition, advanced course	ENGLISH, LITERATURE, RHETORIC  I.—English  II. Anglo-Saxon and Historical English Grammar III. Anglo-Saxon Literature
Dr. Farrand Dr. Boas Dr. Barandd Dr. Boas Dr. Boas Dr. Boas	Profs. Perry and Wheeler Prof. Wheeler Dr. Young Dr. Voung Prof. Wheeler	Dr. McCrea Dr. McCrea Prof. Egbert Prof. Egbert Dr. McCrea Prof. Egbert Dr. McCrea Prof. Egbert Prof. Egbert Prof. Peck Prof. Peck Prof. Peck Prof. Peck Prof. Peck	Mr. Chase Prof. Price

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Total Num- ber Attend- ing.	91	8	102	95	2,28	۰ م	54	V I 4	61		66 19	31		+	e 10
Audit- ors.						H	13				8				
Under- graduate Students.	10		66	94	58 21	61	14				66 13	31		Ø	
Graduate Students.	9	80	ςn )	٦ ٢	n 9	40	27	<b>7-1</b> 4	61		4	6		а	വഹ
Hours per Week.	61	61	£ (	e0 e	1 61 61	ε, ι	0 60	E 2 H	61		<i></i>	1 67 61		61	1 2
Courses,	IV. Chancer V. English Language and Literature of the 11th,	12th, and 13th Centuries XI. History of English Literature from 1789 to the	death of Tennyson XIII. History of English Literature from the birth of	Shakespeare to 1000  XIV. Pope: Language, Versification, and Poetical Mathod	XVI. American Literature XVII. Tennyson, Browning, and Arnold	III. Epochs of the Drama, 1st half-year			XIV. Literary Relations between England and Spain in the Elizabethan Age	III.—Rhetoric	I. English Composition II. English Composition III. English Composition, advanced course		MODERN LANGUAGES A.—ROMANCE LANGUAGES	I.—Romance Philology I. Introduction to Romance Philology	IV. Formatic Elements of Romance Speech Seminar in Romance Philology
Instructor,	Prof. Price Prof. Price	Prof. Woodberry	Prof. Woodberry	Prof. Price	Profs. Brander Matthews and G. R. Carpenter Prof. Price	Prof. Brander Matthews	Prof. Woodberry	Dr. Underhill Dr. Spingarn	Dr. Underhill		Prof. G. R. Carpenter Prof. G. R. Carpenter Dr. Odell	Mr. Carleton Prof. G. R. Carpenter		Prof. Todd	Prof. Todd Prof. Todd

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II. Old Provençal III.—French	V. History of French Literature in 18th Century, especially Voltaire Seminar in Romance Literature	I. Elementary course I. Elementary course III. Italian Literature in the 14th Century IV. Critical Study of Dante's Divina Commedia V. History of Italian Literature V.—Kumanian	I. Elementary course B.—Germanic Languages	I. Longer elementary course II. Grammar, Reading, and Composition IV. Historical Prose VI. History of German Literature from the Earliest Times to the 19th Century VII. Goethe's Faust: Parts I and II IX. History of the German Language X. Great German Writers XIV. Elementary Icelandic XVI. Dutch XVII. Gothic XVIII. Germanic Philology XIX. Teachers' Course, 1st half-year XXI. Teachers' Course, 1st half-year XXI. Geschichte der deutschen Literatur im 19. Jahr- hundert Seminar	ORIENTAL LANGUAGES  I.—Semitic I. Biblical Hebrew, elementary course II. Biblical Hebrew, second course
Prof. Todd	Prof. Cohn Prof. Cohn	Prof. Speranza Prof. Speranza Prof. Speranza Prof. Speranza	Prof. Cohn	Mr. Babbitt Mr. Babbitt Mr. Babbitt Prof. Thomas Prof. Thomas Prof. W. H. Carpenter Prof. Thomas Prof. Thomas Prof. Thomas Prof. Thomas	Prof. Gottheil Prof. Gottheil

Total Num- ber Attend- ing.	g 8 8 4 4 0 4 4 8		ппринтори		20		40 27 10 33 35 34
Audit-							т нн
Under- graduate Students.	пп		7 H H				12 44 14 11 19 119
Graduate Students.	077440448		1 1 1 1 1 1 1 1 1 1 1 1		8		23 23 33 19 19
Hours per Weck.	000000000		<b>с</b> иинниин		61		ннаваннаа
Courses,	III. Biblical Hebrew, third course IV. Rabbinical Hebrew V. Rabbinical Hebrew XII. Arabic, elementary and first courses XIII. Arabic, elementary and second courses XIV. Arabic, third course XV. Syriac, first course XVI. Syriac, second course XVIII. Seminar	II.—Indo-Iranian	I. Sanskrit, elementary course II. Avestan, elementary course III. Sanskrit, advanced course VI. Old Persian, Cunciform Inscriptions VII. Pahlavi, introductory course VIII. Sanskrit Literature XI. Armenian XII. Modern Persian Seminar	III.—Linguistics	I. Introduction to the Science of Language	MUSIC	I. General Musical Course II. General Musical Course, advanced III. Harmony IV. Counterpoint V. Orchestration and Symphonic Form VI. Musical Dictation VII. Musical Seminar VIII. University Chorus IX. University Orchestra
Instructor.	Prof. Gottheil Prof. Gottheil Prof. Gottheil Prof. Gottheil Prof. Gottheil Dr. Yohannan Prof. Gottheil Dr. Yohannan Prof. Gottheil		Prof. Jackson Prof. Jackson Prof. Jackson Prof. Jackson Prof. Jackson Prof. Jackson Dr. Yohannan Dr. Yohannan Prof. Jackson	,	Profs. Jackson and Gottheil		Prof. MacDowell Prof. MacDowell Mr. McWhood Prof. MacDowell Prof. MacDowell Mr. McWhood Prof. MacDowell Mr. Hinrichs Mr. Hinrichs

#### Statement B

#### UNIVERSITY FELLOWS, 1899-1900

I. Wilhelm Alfred Braun . . . Germanic Philology. Toronto University, A.B., 1895.

Chicago University, Fellow in German, 1898-99.

Subjects of investigation: Geschichte des Weltschmerzes in der deutschen Poesie des 19 ten Jahrhunderts; Nature-Sense in Chaucer's Minor Poems.

Topics for papers or lectures: Die Quellen von Wolframs von Eschenbach "Parzival"; Ferdinand Freiligrath as a Revolutionary Poet; Emanuel Geibel in his Relation to the Political Movement of 1848; "Einige Proben deutsch-amerikanischer Poesie" (read before the "Deutscher Verein"); "Götz von Berlichingens eigene Lebensbeschreibung" as a Source for Goethe's Drama; Lessing's "Die Alte Jungfer"; Goethe's "Egmont"—the Poetic Idea Evinced in the Character of the Hero; Review of Lessing's Treatment of the Aristotelian Controversy in Chapters 73–83 of the "Hamburgische Dramaturgie"; Das Naturgefühl in "Werthers Leiden"; Lessing's "Minna von Barnhelm"; Goethe and Carlyle.

2. Ernest Allen Gerrard . . . Psychology.

University of Nebraska, A.B., 1894.

Subjects of investigation: The Elements and the Use of the Elements Employed in Emotional Expression in Literature; The Elements of Musical Expression.

Topics for papers or lectures: Physical and Psychical Correlations in Music; Methods of Graphically Representing Emotional Changes as Recorded in Literary Works; Petrarch the Humanist; English Literature from 1100 to 1200 as Reflected in the Works of Walter Mapp; Exogamy and Endogamy in Asia and Polynesia.

3. Ferris Greenslet . English Language and Literature. Wesleyan University, A.B., 1897, A.M., 1898.

Subjects of investigation: Early English Syntax and Inflection, 1066–1300; The Literary Relations between Spain and England in the 16th and 17th Centuries; The Life and Times of Joseph Glanvill, — his Relations with the Cambridge Platonists and with the Royal Society—his Philosophy, his Theology, his Position in the History of English Prose.

Topics for papers or lectures: Doctor's dissertation: Joseph Glanvill; The Pronominal System of *The Wooing of our Lord;* Studies of the Conjunctions in the *Early English Homilies*, and of the Preposition in the *Bestiary;* The Influence on the English Translations from the Italian and Spanish Court Books, in the Formation of the so-called Euphuistic Style; The Indebtedness of the Elizabethan Romances to the Amadis de Gaule and the Palmerin Cycle; The Spanish Mystics and the English Poets of the Catholic Reaction; The Obligation of Crawshaw to the Writings of Santa Theresa and San Juan de la Cruz.

Published: A Theory of the Drama in the Forum, vol. xxvii, pp. 631-640.

4. George Livingstone Hamilton . . . Romance Philology. Harvard College, A.B., 1895, and A.M., 1897.

Subjects of investigation: The Old French and Latin Sources of Chaucer's *Troilus and Criseyde*. Topics for papers or lectures: The Indebtedness

of Chaucer's Troilus and Criseyde to the Historia Trojana of Guido delle Colonne (to appear in Columbia Studies in Romance Literature and Philology); Notes upon Giovanni di Serravalle's Latin Translation of the Divina Commedia (to appear in Report of the Cambridge Dante Society); Review of The Siege of Troy, edited by C. H.

A. Wager, in *Modern Language Notes*, March, 1900; Review of Works of John Gower, Edited by G. C. Macaulay (to appear in *American Journal of Philology*).

5. Bert Hodge Hill . . . Greek.

University of Vermont, A.B., 1895.

Columbia University, Fellow in Greek, 1898-99.

Subjects of investigation: Vase-Paintings by Duris and Unsigned Vases Attributed to him; The Propylæa; Inscriptions of the Severi; Various Minor Questions in Greek Archæology and Epigraphy.

Topics for papers or lectures: Analysis of the Scheme of Education in Books II and III of Plato's Republic; the Prænomina of Geta; The Philosophy of Persius; Master's thesis; The Vases of Duris.

6. Edward Charles Harwood . . . (Henry Drisler Fellow) Classical Philology.

Stanford University, A.B., 1895, and A.M., 1896.

Subjects of investigation: The Language of Early Latin Inscriptions: The Sources of Greek Philosophy; The Interpretation of Greek Dialectic Inscriptions.

Topics for papers or lectures: The Date and Authorship of the Dionysus of Tivoli; The Language of the Scipio Epitaphs; the Archaistic Works of Greek Sculpture.

7. Alfred Louis Kroeber . . . Anthropology.

Columbia College, A.B., 1896; Columbia University, A.M., 1897.

Subjects of investigation: The Arapaho Indians; The Eskimo; Color Harmonies.

Topics for papers or lectures: Tales of the Smith Sound Eskimo (in Journal of American Folk-Lore); The Eskimo of Smith Sound (in Bulletin of American Museum of Natural History); Symbolism of the Arapaho (ibid.); An Arapaho

Creation Myth (read before the American Folk-Lore Society); Cheyenne Tales.

8. Edward Laurence Smith . . . Romance Philology. Delaware College, A.B., 1896, and A.M., 1899.

Subjects of investigation: Critical Study and Textual Reconstitution of the Various Extant Manuscripts of the "Chanson de Roland"; Origin and Historical Development of Affirmation in the French Language; Studies in Provençal Etymology, with Special Reference to the Vocabulary of Appel's "Provenzalische Crestomathie."

Topics for papers or lectures: French Verse Comedies in the XVIII Century, Destouches, Piron, Gresset; Lessing's Litteraturbriefe; Reimarus's Fragments; Lessing's Criticisms of Diderot's "Père de Famille"; Goethe's "Götz von Berlichingen; Goethe and Byron; Origin and Development of the Three Principal Sources of the Roland Epic, as Presented by M. Gaston Paris; Four Lectures before the Romance Philology Seminar Dealing with Philological, Textual, and Literary Questions concerning the "Chanson de Roland."

9. Franklin Zeiger . . . Philosophy.

Columbia College, A.B., 1898.

Subjects of investigation: Studies in Spencer's Ethics; Epistemological Studies in Hume; Studies in Kant's Transcendental Dialectic.

Topics for papers or lectures: Hume's Treatise of Human Nature as a Systematic Theory of Epistemology; Kant's Nova Dilucidatio; Kant's Metaphysical Deduction of the Categories; Kant's First Antinomy and the Problems of Creation and of the Infinity of Space; The Evolutionary and the Social Points of View in Educational Theory; A Criticism of a Research Entitled "A Study of Fears" by Dr. G. Stanley Hall.

### Statement C

# RECOMMENDATIONS FOR DEGREES, 1899-1900

Of students having the major subject under the Faculty of Philosophy

# I.—Doctor of Philosophy:

Julius August Bewer,

Royal Gymnasium, Düsseldorf, Testimonium Maturitatis, 1895.

Union Theological Seminary, B.D., 1898.

Major subject: Semitic Languages.

Minor subjects: Semitic Languages; Greek.

Dissertation: History of the New Testament Canon in the Syriac Church.

William Isaac Chamberlain,

Rutgers College, A.B., 1882, and A.M., 1886.

Major subject: Education.

Minor subjects: Education; Philosophy.

Dissertation: Education in India.

Victor Seldon Clark,

University of Minnesota, B.L., 1890.

Major subject: Latin.

Minor subjects: Roman Archæology; Roman Law. Dissertation: Studies in the Latin of the Middle Ages

and the Renaissance.

George Tobias Flom,

University of Wisconsin, B.L., 1893.

Vanderbilt University, A.M., 1894.

Major subject: Germanic Languages and Literatures.

Minor subjects: Germanic Languages and Literatures; English.

Dissertation: Scandinavian Words in the Scotch Dialect of English.

Louis Herbert Gray,

Princeton University, A.B., 1896; Columbia University, A.M., 1898.

Major subject: Indo-Iranian Languages and Literatures. Minor subjects: Indo-Iranian Languages and Litera-

tures; Arabic.

Dissertation: Indo-Iranian Phonology: With special reference to the Middle and New Indo-Iranian languages.

## Ferris Greenslet,

Wesleyan University, A.B., 1897; A.M., 1898.

Major subject: English Language and Literature.

Minor subjects: Comparative Literature; Philosophy.

Dissertation: Joseph Glanvill.

### Samuel Paul Molenaer.

Gymnasium, St. Catherine, St. Petersburg, Russia, Zeugniss der Reife.

Major subject: Romance Philology.

Minor subjects: Romance Literature; German.

Dissertation: Egidio Colonna, Du Gouvernement des Rois.

### Rudolph Rex Reeder,

Major subject: Education.

Minor subjects: Education; Geography.

Dissertation: The Historical Development of School Readers and Method in Teaching Reading.

# Frank Clarence Spencer,

University of Colorado, B.S., 1894.

Major subject: Education.

Minor subjects: Education; Anthropology.

Dissertation: The Education of the Pueblo Child: A

study of arrested development.

Total...... 9

### II.-Master of Arts:

# Nancy Semple Acheson,

Pennsylvania College, B.L., 1898.

Major subject: Education.

Minor subjects: Education; Literature.

Essay: Correlation of Studies in the Public Schools of the United States.

Walter Whipple Arnold,

University of Rochester, A.B., 1898.

Major subject: Latin Language and Literature. Minor subjects: Greek Archæology; Literature.

Essay: The Business of the Port of Rome.

Franklin Thomas Baker,

Dickinson College, A.B., 1885; A.M., 1889.

Major subject: Comparative Literature.

Minor Subjects: Comparative Literature; English.

Essay: The Romantic Elements in the Works of Thomas Gray.

Agnes Baldwin,

Columbia University, A.B., 1897.

Major subject: Greek Language and Literature.

Minor subjects: Greek Archæology; Latin.

Essay: Nicosthenes.

Moses Beckhardt,

College of the City of New York, B.S., 1894.

Major subject: Education.

Minor subjects: Education; Hebrew.

Essay: Orphan Asylum Education.

Le Roy Mason Beeman,

Wesleyan University, A.B., 1895.

Major subject: Education.

Minor subjects: Education; Geography.

Essay: The Place of Emulation in Public School Work.

Sarah Helen Bogart,

Wellesley College, A.B., 1899.

Major subject: Education.

Minor subjects: Education; Greek.

Essay: Present Status of Greek.

Archibald Lewis Bouton,

Amherst College, A.B., 1896.

Major subject: English.

Minor subjects: European History; Political Economy

and Finance.

Essay: Argumentation and Public Speaking in the Col-

lege Curriculum.

## William Aspenwall Bradley,

Columbia University, A.B., 1899.

Major subject: Literature.

Minor subjects: Literature; Philosophy.

Essay: The Morbid Note in Art.

### Alice Gertrude Brickelmaier,

Cornell University, B.S., 1899. Major subject: Education.

Minor subjects: Education; German.

Essay: Recent Changes in Geometry Text-Books.

### Helen Lillie Cram,

University of Vermont, A.B., 1879.

Major subject: Education.

Minor subjects: Psychology: Sociology and Statistics. Essay: Secondary Schools of New England in the

Colonial Period.

### Thomas Herbert Dickinson,

Ohio State University, Ph.B., 1899.

Major subject: Comparative Literature. Minor subjects: English; Education.

Essay: The Indebtedness of Petrarch as a Lyrical Poet

to his Predecessors.

# Florence Anderson Dowden,

Columbia University, A.B., 1897.

Major subject: Literature.

Minor subjects: Literature; Education.

Essay: Concerning Shelley and the Fine Arts. Being

mainly a Study in his Personality.

# Lucia Fessenden Gilbert,

Smith College, B.L., 1897.

Major subject: Education.

Minor subjects: Education; English.

Essay: What Work in Literary Criticism and Interpreta-

tion can be done in the High School?

John Smith Harrison,

Columbia University, A.B., 1899.

Major subject; Literature.

Minor subjects: English; Education.

Essay: Moral Sensibility in the Nibelungenlied and the Iliad.

Rodney Mulford Heggie,

New York University, A.B., 1899.

Major subject: Latin Language and Literature.

Minor subjects: Greek; Education.

Essay: Latin Devotiones.

George Sidney Hellman,

Columbia University, A.B., 1899.

Major subject: Literature.

Minor subjects: Literature; Philosophy.

Essay: Animals in Literature.

Bert Hodge Hill,

University of Vermont, A.B., 1895.

Major subject: Greek Language and Literature. Minor subjects: Latin; Greek Archæology.

Essay: The Vase Painter Duris.

Masumi Hino,

Doshisha University, Kyoto, Japan, B.D., 1897.

Major subject: Philosophy.

Minor subjects: Church History; Hebrew. Essay: David Hume's Theory of Causation.

Gertrude Mary Hirst,

Newnham College, Cambridge, A.B., 1890.

Major subject: Greek Language and Literature.

Minor subjects: Latin; Latin Archæology.

Essay: Greek Commerce in the Sixth Century B.C., as Illustrated by Herodotus.

Edwin Bissell Holt,

Harvard University, A.B., 1896.

Major subject: Psychology.

Minor subjects: Physiology; Anthropology.

Essay: A Study of Attention as Related to Motor Innervation. Lewis Montefiore Isaacs,

New York University, Ph.B., 1897.

Major subject: Music.

Minor subjects: Literature; German Language and

Literature.

Essay: The Instability of Music.

Alice Rebekah Jackson,

Wellesley College, B.S., 1891.

Major subject: English Language and Literature.

Minor subjects: Literature; Education.

Essay: A Study of the Metaphor and Simile in John Gower's Confessio Amantis.

Joseph Perry Jackson,

Oskaloosa College, A.B., 1877; A.M., 1880; Iowa State University, LL.B., 1879.

Major subject: Education.

Minor subjects; Psychology; Education.

Essay: The Place of Arithmetic in the Common-School Course.

Harry M. Markson,

Cornell University, Ph. B., 1898.

Major subject: Education.

Minor subjects: Literature; American History.

Essay: Educational Legislation in Pennsylvania from 1776-1834.

George Matthew,

Columbia University, A.B., 1899.

Major subject: German Language and Literature.

Minor subjects; German Language and Literature; Indo-Iranian.

Essay: The Immediate Sources of Wagner's Parsifal.

Ernest Allan Miller,

Cornell University, B.S., 1899.

Major subject: Education.

Minor subjects: Education; Mathematics.

Essay: The History and Development of Religion in

the Ontario School System.

John Arthur Murphy,

St. Francis Xavier's College, A.B., 1899.

Major subject: Literature.

Minor subjects: Political Economy and Finance; Sociology and Statistics.

Essay: The Limitations of the Drama versus the Limitations of the Novel.

Louise Place,

Columbia University, A.B., 1896.

Major subject: Latin.

Minor subjects: Greek Archæology; Greek.

Essay: The Indebtedness of the English Satirists to the Roman Satirists.

Sara Jay Phillips,

Vassar College, A.B., 1897. Major subject: Literature.

Minor subjects: Literature; Education.

Essay: The Amazonian Heroine in Literature.

Sigmund Reich,

College of the City of New York, A.B., 1895.

Major subject: Semitic Language and Literature.

Minor subjects: English; German Language and Literature.

Essay: On a Midrashic Manuscript Belonging to the Library of Columbia University.

Louis Rouillion,

Cornell University, B.S., 1891.

Major subject: Education.

Minor subjects: Education; Philosophy. Essay: The Economics of Manual Training.

Montgomery Schuyler, Jr.,

Columbia University, A.B., 1899.

Major subject: Indo-Iranian Languages.

Minor subjects: Indo-Iranian Languages; French Language and Literature.

Essay: A Study of the Verb Forms in the Fragments of the Avesta.

John Walter Stephens,

Trinity University, Texas, A.B., 1893; Cumberland University, B.D., 1896.

Major subject: Philosophy.

Minor subjects: Sociology; Ethics and Greek.

Essay: The Relation of Motives to Character and Conduct.

### Alfred Stoeckius,

Gymnasium Sondershausen, Germany, 1891; Lutheran Theological Seminary, 1896; University of Pennsylvania, 1896.

Major subject: Germanic Languages and Literatures. Minor subjects: Germanic Languages and Literatures; English.

Essay: Charakteristische Tendenzen der deutschen Litteratur im neunzehnten Jahrhundert.

### Edith Parker Striker,

Columbia University, A.B., 1899.

Major subject: Greek Language and Literature.

Minor subjects: Education; Latin.

Essay: Change in Plato's Ideas of Education between the "Republic" and the "Laws."

# Ruth Annette Warren,

Smith College, A.B., 1895.

Major subject: Latin Language and Literature. Minor subjects: Latin Archæology; Greek.

Essay: Druids in Britain.

## John Edwin Wells,

Swarthmore College, B.L., 1896; M.L., 1899.

Major subject: English Language and Literature.

Minor subjects: German Language and Literature; Literature.

Essay: A Study of the Syntax of Nouns in the Anglo-Saxon Poem "Gudlac."

# Herbert Lemuel Wilbur,

Amherst College, A.B., 1892.

Major subject: Education.

Minor subjects: Education; Latin.

Essay: The Machinics of the Recitation.

Zaidee Williams,

Columbia University, A.B., 1892.

Major subject: Latin Language and Literature.

Minor subjects: French Language and Literature; Romance Philology.

Essay: The Philosophical Identity of Horace and

Persius.

Amelia Wohlfarth,

Columbia University, A.B., 1899.

Major subject: Germanic Languages and Literatures. Minor subjects: Germanic Languages and Literatures; Education.

Essay: The Dramatic Art in its Relation to the Truth of History: A Study of the Views and Practice of Lessing, Goethe, and Schiller.

Franklin Zeiger,

Columbia University, A.B., 1898.

Major subject: Philosophy.

Minor subjects: Psychology; Sociology and Statistics. Essay: Recent Scientific Investigation of the Will. Total......42

## SCHOOL OF PURE SCIENCE

#### REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

I have the honor to submit the eighth annual report on the work of the Faculty of Pure Science. This report refers to the academic year ending June 30, 1900, and consists, first, of the report of the Dean, and secondly, of the reports of the heads of the departments represented in the Faculty.

The statistics of attendance in the School of Pure Science are embodied in the following detailed statement. Appended to this statement is a table giving a summary of the statistics of the School since its organization in 1892. These statistics, however, are given in a somewhat different form from that followed in previous reports. Hitherto such statistics have included the numbers of students from the undergraduate and other schools of the University pursuing elective subjects in the School of Pure Science; but since these numbers do not appear to throw any important light on the graduate work of the School it is deemed best to omit them. Attention may be called also to the fact that the figures of the table show a marked falling off, as compared with previous years, in the number of special students in the School. The reason for this is that the rule of the Faculty limiting special students to those who are able to pursue

advanced work has been strictly enforced. Special students falling outside the latter class have been advised to enter the University through Columbia College or through the Schools of Applied Science. Excluding, therefore, all undergraduates, a considerable number of which as hitherto have taken advanced work, the total number of students pursuing graduate courses in the School is 115. Of these, 76 are primarily registered under the Faculty of Pure Science, and 39 are primarily registered under other Faculties of the University. Of the entire number, all but 15 were candidates for the higher degrees of A.M. and Ph.D.; while all but 7 held baccalaureate or other degrees requiring several years of preliminary training.

Owing to the rigid exclusion of ill-qualified special students, the total number of students in the School was less during the past year than during either of the two preceding years; but, on the other hand, as shown by the last line of the table below, there was a substantial increase in the number of candidates for the higher degrees.

Number of students primarily registered under the Faculty of Pure Science:

Candidates for the higher degrees	
	76

Number of students registered primarily under other Faculties of the University:

Candidates for the higher degrees from:	
College of Physicians and Surgeons 2	0
Schools of Applied Science	7
School of Philosophy	2
Teachers College	
School of Law	
Students not candidates for degrees	

Table showing statistics of School of Pure Science since its organization in 1892:

	1892-3	1893-4	1894-5	1895-6	1896-7	1897-8	1898-9	1899–1900
Graduate students* registered in School of Pure Science Special students regis- tered in School of		25	<b>2</b> 6	28	36	41	44	65
Pure Science	6	9	9	7	19	25	29	11
	3	4	5	8	18	46	52	35
					12	15	15	4
Totals Totals excluding special	22	38	40	43	85	127	140	115
students	16	29	31	36	54	87	96	100

The degrees held by students registered primarily in the School of Pure Science are shown by the following statement:

Number	holding	the	degree	of	A.B	42
"	"	"			B.S	τ8
"	"	"	"	"	Ph.B	5
"	"	"	"	"	B.L	I
4.6	"	"	"	"	B.E	I
"	"	"	"	"	C.E	I
	"	"	"	"	E.E	1
"	"	"	"	"	Mech.E	1
"	"	"		"	Ph.G	1
"	"	"	"	"	A.M	23
"	66	**	"	"	M.S	5
"		"	"	"	Ph.D	2
"	"	"	"	"	M.D	8

Of the whole number (115) of students included in the above enumeration, 17 are alumni of the undergraduate schools of Columbia University, while the remaining 98 come from 45 different institutions of 24 different States and foreign countries.

The following table gives the names, the dates, the designa-

<sup>\*</sup>Women graduate students are included under the third entry of the table for years previous to 1899-1900; for the latter year they are included in the first entry.

tions of the first degrees and the institutions granting them, and the titles of the dissertations, of the candidates upon whom the degree of Doctor of Philosophy was conferred on the recommendation of the Faculty of Pure Science. The number of such candidates is 9. The average number of years for these candidates elapsing between the time of attainment of the first degree and the time of attainment of the doctorate is 7.5 years, the shortest interval being 3 years and the longest interval being 19 years.

Candidate.	Title of Dissertation.
George Neander Bauer, B.S., University of Minnesota, 1894; M.S., University of Iowa, 1898.	The parallax of $\mu$ Cassiopeiæ and the positions of 56 neighboring stars as deduced from the Rutherfurd photographic measures.
Caroline Ellen Furness, A.B., Vassar College, 1891.	Catalogue of stars within one de- gree of the north pole, and optical distortion of the Helsingfors astro- photographic telescope, deduced from photographic measures.
August Henry Gotthelf, B.S., Columbia University, 1897; A.M., 1898.	The action of nitrils on organic acids.
David Griffiths, B.S., Agricultural College of South Dakota, 1802; M.S., 1803.	The North American Sordariaceæ.
Tracy Elliot Hazen, A.B., Vermont University, 1897; A.M., Columbia University, 1899.	The Ulothricaceæ and Chætophoraceæ of the United States.
Charles Judson Herrick, B.S., University of Cincinnati, 1891; M.S., Dennison University, 1895. Aladine Cummings Longden, A.B., De Pauw University, 1881;	The cranial and first spinal nerves of Menidia; a contribution upon the nerve components of the bony fishes. Electrical resistance of thin films deposited by cathode discharge.
A.M., 1884. Hermann Andreas Loos, B.S., College of the City of New York, 1895; A.M., Columbia University, 1898.	A study on the constitution of colophony resin.
Frederick Clark Paulmier, B.S., Princeton University, 1894; M.S., 1896.	The spermatogenesis of Anasa Tristis.

The following table gives the names, the dates, the designations of the first degrees and the institutions granting them, and the titles of the essays, of the candidates upon whom the degree of Master of Arts was conferred on recommendation of the Faculty of Pure Science. The number of such candidates is 24. The average time interval for these

candidates elapsing between the times of attainment of the first and higher degree is 4.1 years, the shortest interval being I and the longest interval being IO years. Of the candidates mentioned in this list, six were simultaneously candidates for the degree of M.D., and one was simultaneously candidate for the degree of E.M.

Candidate.	Title of Essay.
Carl Lucas Alsberg, A.B., Columbia University, 1896. Howard J. Banker, A.B., Syracuse University, 1892. May Banta, B.S., Wellesley College, 1899. Leopold Boroschek, B.S., College of the City of New	On the fatigue curve of mammalian muscle.  A preliminary contribution to a knowledge of the American Hydrea.  A comparison of oat, rice, maize, and potato starch.  The nitro Phthalic acids.
York, 1897. Bergen Davis, B.S., Rutgers College, 1896. Norman Edward Ditman, Ph.B., Yale University, 1896. Charles Henry Ellard,	A new phenomenon produced by sound waves.  The effect of chemical agencies upon fatigue in the muscles of the frog. Oil driers.
A.B., Columbia University, 1897. Robert Tilden Frank, A.B., Harvard University, 1896. Robert Hurtin Halsey, A.B., Columbia University, 1896. Nellie Priscilla Hewins, B.S., Cornell University, 1898. Charles Knap Hitchcock, Jr., A.B., Columbia University, 1897.	The effect of fasting on the fatigue curve.  The comparative anatomy of reptilian, ovian, and mammalian brains.  Contributions to the embryology of the Caprifoliaceæ.  The flora of a New Jersey salt marsh.
Perry Wilson Jenkins, A.B., Miami University, 1890; A.M., 1893. Lily Logan,	A determination of the inequality of the pivots of the Rutherfurd transit.  A comparison of the bromine and
A.B., Tulane University, 1897.  Henry Bedinger Mitchell, E.E., Columbia University, 1898.	iodine absorption figures of various oils.  Transcendental numbers; their existence and certain of their properties.
Herbert Raymond Moody, B.S., Massachusetts Institute of Technology, 1892. Arthur Colon Neish,	The electrolysis of calcium carbide, with reference to the formation of chlorate.  The composition and properties of
A.B., Queen's University, 1898.  Martha Ornstein, A.B., Columbia University, 1899.  David Brainerd Oviatt, M.E., Cornell University, 1887;	uranium ferrocyanide.  Focal properties of surfaces of the second order.  Heat and the expansion of gases.
Mech. E., 1888. Robert Bowie Owens, E.E., Columbia University, 1891;	Thorium radiation.
M.S., McGill University, 1900. Paul Monroe Pilcher, B.S., University of Michigan, 1898.	Two epochs in the history of obstetrics.

Candidates.	Title of Essay.
Charles Joseph Pretzfeld, A.B., Columbia University, 1898. Edwin Kellogg Trowbridge, A.B., Williams College, 1899. Ada Watterson, A.B., Columbia University, 1898.	The turpentines in inorganic mordants and their determination. Calibrating standards of resistance and electromotive force. The effect of sudden changes of temperature on the growth of a certain fungus.
Richard Weil, A.B., Columbia University, 1896.	The morphological basis of retraction,

With this report of the last academic year of the century it seems fitting to present the following table, showing the number of degrees conferred upon candidates on recommendation of the Faculty of Pure Science for each of the years since its organization. From this table it is seen that the total number of candidates on whom the degree of A.M. has been conferred is 107; and that the total number of candidates on whom the degree of Ph.D. has been conferred is 50.

TABLE SHOWING NUMBER OF DEGREES CONFERRED

Degree.	1893	1894	1895	1896	1897	1898	1899	1900	Totals.
A.M Ph.D	2 3	7 3	4 6	14 3	10 4	27 8	19	24 9	107 50

The distribution of courses of study in the School as shown by the Announcement for 1900–1901, and the number of graduate courses given during the past academic year, are exhibited in the following table:

	Number of Courses	Number of Graduate Courses Given	
Department.	Graduate,	Undergraduate.	during 1899-1900.
Anatomy	15 10	9	5 7
Bacteriology Botany	2 22	1 8	2
Chemistry	19	10	19
Mathematics		8	4 5 14
Mineralogy	7	4 4	4
Physics	4		3 3
Zoölogy		2	
Totals	148	54	81

A noteworthy increase in the opportunities afforded by the School for the study of the biological sciences has come from the connection of the Department of Botany with the New York Botanical Garden, and from the connection of the Department of Zoölogy with the American Museum of Natural History and the New York Zoölogical Park. These departments, already well equipped and manned, now possess unrivalled facilities for the work of advanced instruction and research.

Attention is respectfully invited to the departmental reports which follow for interesting and instructive details concerning the varied scientific activities of the academic staff, of Fellows, of Scholars, and of graduate students in the School. These details refer to the work of instruction, to original researches, to publications, to field explorations, to departmental accessions, needs, etc. Amongst these dedails the Dean would mention with special pleasure the considerable additions in the way of apparatus and other equipment received during the year by several departments. Instructors and students alike have warmly appreciated the enlightened liberality which has prompted friends of the University to provide these important accessories to scientific investigation.

An event of the year of special interest to the academic staff of the School of Pure Science was the series of meetings of the American Association for the Advancement of Science and sixteen affiliated societies held at Columbia during the last week of June, 1900. About six hundred delegates, coming from all parts of the United States and Canada, were present at these meetings; and papers with reference to almost every question in the fields of science were presented and discussed. The exchange of ideas thus afforded was of signal service to the members of our staff in attendance, and the hospitality extended by Columbia was graciously appreciated by the visiting guests.

Very respectfully submitted,

R. S. WOODWARD,

### REPORTS OF DEPARTMENTS

### DEPARTMENT OF ANATOMY

Professor George S. Huntington

I. Educational Staff of Department. Several changes in the educational staff of the Department have taken place during the academic year. Owing to the increased scope of the surgical instruction at the Roosevelt Hospital, Drs. Jos. A. Blake and Geo. E. Brewer have been obliged to sever their connection with the Anatomical Department as Assistant Demonstrators in charge of part of the section-teaching to the first-year class. The Department deeply regrets the necessity of their retirement from the anatomical staff and desires to express the appreciation which their valuable and faithful services merit. Drs. Walton Martin and H. D. Collins have been promoted, respectively, to the positions left vacant by Drs. Blake's and Brewer's resignation. Drs. V. C. Pedersen and A. Van S. Lambert have been appointed Assistant Demonstrators of Anatomy.

The leave of absence of Dr. Geo. W. Crary has been extended for one year, and Dr. H. E. Hale has been appointed Acting Assistant Demonstrator of Anatomy during the period of his leave.

2. Graduate Courses of Instruction Given during the Year and Attendance of Students on Each. The following courses leading to the degree of A.M. or Ph.D., in conjunction with the medical course, have been given during the year:

Course	Attendance	Degree
No. 10	2	Ph D.
" 15	I	A.M.
" 18	3	44
" 20	ī	"
" 14	3	"
•		
То	tal 10	

3. Work of Fellow. Dr. Jos. A. Blake, as Alumni Association Fellow in Anatomy, has commenced an investigation in the embryology of the prostate gland, and completed the publication of his research on the structure of the metencephalic ventricular cavity.

Dr. H. E. Hale has been appointed Fellow in Anatomy for the ensuing year.

4. Museum and Research Work. The Department has received some very valuable accessions during the year to the Museum of Human and Comparative Anatomy. Pending the construction of suitable cases and the equipment of the two museum floors of the anatomical building, the material has been stored for future preparation and exhibition. The Department has considered it advisable to restrict the preparation of specimens for museum exhibition until the cases for their reception are completed, owing to their unavoidable deterioration if left unprotected. It is hoped that during the coming year a considerable portion of this necessary equipment may be provided.

The following papers were presented by officers of the Department:

G. S. Huntington — "The Morphological Significance of Certain Periclavicular Supernumerary Muscles." N. Y. Acad. Sciences, Feb. 12, 1900.

"Muscular Variations of the Pectoral Girdle." Assoc. Am. Anat., May 1, 1900.

Jos. A. Blake—"Congenital Cardiac Deformity." Assoc. Am. Anat., Dec. 27, 1899.

### DEPARTMENT OF ASTRONOMY

#### Professor J. K. REES

 Educational Staff.—John Krom Rees, Ph.D., Professor of Astronomy and Director of the Observatory. Harold Jacoby, Ph.D., Adjunct Professor of Astronomy.

> S. Alfred Mitchell, Ph.D., Tutor in Astronomy. George W. Hill, LL.D., Lecturer on Celestial Mechanics.

Charles Derleth, C.E., and W. C. Kretz, Ph.D., assisted in the Summer School of Practical Geodesy during six weeks of the summer of 1899, at Osterville, Mass.

During the first half of the session of the Summer School, M. S. Falk, C. E., was employed as an additional Assistant.

S. A. Mitchell, the newly appointed Tutor in Astronomy, reported for duty July 1st, at the Summer School.

By the aid of funds contributed by Rutherfurd Stuyvesant, Esq., and by Miss Catherine W. Bruce, I have been able to retain the services of

- F. E. Harpham, A.B., Chief Computer.
- E. Magill, A.B., Computer.
- M. E. Tarbox, A.B., Computer.
- H. L. Davis, A.B., Computer.

Dr. Hill lectured on Celestial Mechanics and instructed a graduate student from October 15th to April 1st.

### 2. University and Other Courses.

	•		
Instructors	Courses	Hours per Week	Students
Prof. Rees assisted by Dr. Mitchell	Astronomy t General Astronomy	2	2 Graduates 10 Seniors 3 Juniors 1 Sophomore
Dr. Mitchell	Astronomy 2 Practical Astronomy	2 with Observatory work	2 Graduates A.M.
Prof. Rees Prof. Jacoby	Astronomy 3 Geodesy 3d year Civil Engineers	2	21 C.E., 1 A.M.
Prof. Rees Prof. Jacoby	Astronomy 3 (continued) Geodesy 4th year Civil Engineers	2 one term	9 C.E.
Prof. Jacoby with Assistants	Astronomy 3 Summer School in Ge- odesy, June 1 to July 12, 1899		13 C.E.
Prof. Rees assisted by Dr. Mitchell	Astronomy 4 Advanced Spherical and Practical Astronomy Work	and Observatory work	4 Graduates Ph.D.
Prof. Jacoby	Astronomy 6 Reduction of Photo- graphic Star Plates	I .	2 Graduates Ph.D.
Dr. George W. Hill	Astronomy 8 Lectures on Celestial Mechanics	I	2 Graduates Ph.D.
Dr. George W. Hill	Astronomy 9 Advanced Course in Ce- lestial Mechanics	I	1 Graduate Ph.D.

3. W. C. Kretz, Ph.D., delivered the required 150 copies of his dissertation to the Dean of the Faculty of Pure Science on May 14, 1900.

George Neander Bauer, B.S. (University of Minnesota, 1894; M.S., Univ. Iowa, 1898), held the Fellowship in Astronomy for the year 1899–1900. He received the Ph.D. degree at Commencement. His printed dissertation will be delivered in the fall. The New York Academy of Sciences is publishing the dissertation. The title of dissertation is: "The Parallax of Mu Cassiopeiæ and the Positions of 56 Neighboring Stars'as Deduced from the Rutherfurd Photographic Measures."

Caroline E. Furness, A.B. (1891, Vassar), received the Ph.D. degree at Commencement. Her dissertation has been printed by the Vassar College Observatory, and is entitled: "Catalogue of Stars within One Degree of the North Pole, and Optical Distortion of the Helsingfors Astro-photographic Telescope, Deduced from Photographic Measures."

4. Professor Rees continued the observations for Variation of Latitude and the Constant of Aberration to May 1, 1900, thus completing seven years' continuous observing. Dr. Davis voluntarily assisted, after his resignation went into effect on June 15, 1899, until July 15th, on account of the illness of Professor Rees. Professor Jacoby has continued his photographic researches.

#### PUBLICATIONS

By Professor J. K. Rees: "The Variation of Latitude at New York, and a Determination of the Constant of Aberration from Observations at the Observatory of Columbia University" (with Professor Jacoby and Dr. Davis). Third paper. The Astronomical Fournal, Jan. 4, 1900, No. 474.

Before a joint meeting of the American Mathematical Society and the American Physical Society, held at New York City, February 24, 1900, Professor Rees read a paper on the subject named above. Abstracts with tables and illustrations were published in the Bulletins of the Societies. Bulletin of the Amer. Math. Soc'y, April, 1900, pp. 269-273;

Bulletin of the Amer. Phys. Soc'y. A general paper on the same subject was written by Professor Rees for Popular Astronomy, and was published in No. 74 of that journal.

The results of the seven years' observations were presented before the Section of Astronomy and Physics of the N. Y. Academy of Sciences.

The Variation of Latitude results have been used by Dr. Th. Albrecht of the Centralbureau der Internationalen Erdmessung at Berlin in his Bericht über den Stand der Erforschung der Breitenvariation am Schlusse des Fahres 1899.

By Professor Harold Jacoby: "Variation of Latitude at New York, and a Determination of the Constant of Aberration." (With J. K. Rees and H. S. Davis.) Astronomical Fournal, No. 474, Jan. 4, 1900. "Astronomical Photography," International Monthly, May, 1900.

Dr. Jacoby has also written numerous popular articles on astronomical subjects for various magazines and newspapers.

By Dr. George W. Hill: "On the Inequalities in the Lunar Theory Strictly Proportional to the Solar Eccentricity." *Astronomical Journal*, No. 471.

By Dr. S. A. Mitchell: "The Moon Hoax." Popular Astronomy, May, 1900.

- 5. The Summer Class in Practical Geodesy continued the geodetic survey near Osterville, Mass., from June 1 to July 12. The Class was in charge of Professor Jacoby. The work done is indicated on the enclosed printed scheme.
- 6. I again urge the need of a working observatory supplied with instruments and apparatus of the first class.
- 7. Unfortunately for Astronomical Science, Miss Catherine W. Bruce died on March 13, 1900. This Department owes much to her generosity.

Rutherfurd Stuyvesant, Esq., has continued his gifts.

In making arrangements for observing the expected November shower of meteors, we were aided by contributions from Messrs. J. H. Ladew and F. Aug. Schermerhorn.

Col. P. S. Michie allowed one of our parties under Dr. Mitchell to use the West Point Observatory, and Lieut. Crabbs gave the party valuable aid.

At Bayport, Long Island, Mr. Chas. A. Post gave me the use of his observatory and apparatus and at the same time rendered invaluable service himself. Only at Bayport, so far as I can learn, was a photograph of a meteor trail secured. The plate is now in the hands of Dr. Elkin of Yale Observatory for measurement and reduction.

Dr. Anders Donner reports that the special polar telescope is nearly finished at Helsingfors. I have sent on the first payment, \$400.00.

The January lectures at the American Museum of Natural History were given by Professor Rees as follows:

January 6th-Comets and Meteors.

January 13th—Recent Interesting Achievements of Astronomical Photography.

January 20th—The Solar Eclipse of May 28, 1900; Path of Totality across the United States.

January 27th—Some American Observatories; their Instruments and Work.

Prof. Rees was appointed international juror at the Paris Exposition in the Department of Astronomical Instruments, and expects to sail for Europe May 31.

Dr. S. A. Mitchell received from the President leave of absence in order to join the Naval Observatory party at Griffen, Ga., to observe the total eclipse of the sun on May 28, 1900.

#### DEPARTMENT OF BOTANY

#### Professor Lucien M. Underwood.

The staff of the Department has remained the same as for the previous year, except that by the union with the New York Botanical Garden noted below, there has been an important addition to the force of instruction by means of which the facilities offered by the Department have been very notably increased. This feature of the departmental growth is discussed more in detail below. Dr. C. C. Curtis as Tutor and Dr. M. A. Howe as Assistant have rendered most helpful and efficient service in instruction. In the absence of

Dr. H. M. Richards from Barnard College, on account of severe and extended illness, Dr. Howe has taken a portion of the work at Barnard during the year and with the aid of the regular assistants at Barnard has very efficiently carried on the work of instruction.

During the year the following courses have been elected with the following attendance:

Course 1	18	
Course 2	5	
Course 4	4 \ Collegiate cour	ses
Course 5	4	
Course 8	47 J	

Courses 3, 6, and 7 were not elected during the year. The others show an increase over the preceding year except Course 5 which remains the same.

Course 9	1
Course 10	2
Course 12	2
Course 13	4 } Research courses
Course 14	3
Course 16	2
Course 29	I J

Besides the above, Dr. Howe has given instruction to two persons in Course 18 who were registered students at the Botanical Garden.

The Fellow in Botany, Mr. Tracy E. Hazen, has continued his studies in the fresh-water algæ, confining his research mainly to the families *Ulothricaceæ* and *Chætophoraceæ*, and his thesis covers a monograph of these families as they occur within the limits of the United States. In this work Mr. Hazen has accomplished results that will be valuable not only from a scientific but from a pedagogical standpoint, since these families involve some of the commonest forms of fresh-water algæ available for laboratory study, and their accurate definition as well as their seasonal habits have never been made a matter of serious or accurate study in America.

Other work leading to a thesis is that of Mr. David Griffiths, who has made extended studies of the Sordar-

iaceæ, a group of fungous organisms commonly occurring on decomposing organic matter. The results of this study are likewise twofold, for, aside from the scientific results attained in the thesis, the group is one peculiarly well adapted to study and cultivation in the laboratory as illustrative of one of the three great types of fungi. Both of these theses are accepted for publication in the Memoirs of the Torrey Botanical Club.

Other work leading to degrees has been carried on along embryological, physiological, and taxonomic lines, in three cases leading to the degree of A.M. Ten students have engaged in major research work in the Department.

Dr. C. C. Curtis spent a considerable portion of the summer of 1899 in ecological and physiological work in the higher altitudes of Uninta and adjoining counties of Wyoming and in Colorado, and will continue his researches there during the summer of 1900. Dr. Curtis has also given attention during the present year to the subjects of Turgidity of Mycelia, on which he has published a preliminary paper, and to the measurements of the force of transpiration. Dr. Howe has devoted himself to the study of the Eastern algæ, more especially the *Rhodophyceæ*, and is spending the present summer (1900) in the Bermuda Islands and at various points along the Atlantic coast.

Two books have been published from the Department during the past year, both by the head of the Department. Other publications have been included in the "Contributions from the Department of Botany," advancing volume seven to number 171. These have been by the following contributors: L. M. Underwood and F. E. Lloyd (1), F. E. Lloyd (1), C. C. Curtis (1), H. M. Richards (1), D. Griffiths (2), R. M. Harper (1), A. J. Grout (1), E. P. Bicknell (5). The editorship of the publications of the Torrey Botanical Club has also devolved on the Department, involving the publication of nearly 1000 pages of botanical matter during the year ending December 31, 1899. Among these is a paper by L. M. Underwood on the "Genera of Ferns," forming No. 4 of vol. vi. of the *Memoirs* of the club.

The three principal developments of the Department during the year, in the order of their importance, are: the union with the New York Botanical Garden, which has become an established fact during the present year; the equipment of the botanical conservatory; and the establishment of the courses of botany in the Summer School.

1. The union with the Botanical Garden commenced at the close of the summer vacation of 1800 with the removal of the herbarium to the Botanical Museum at Bronx Park, followed soon after by the removal of the botanical library. in accordance with the terms of the contract with the managers of the garden. Research instruction commenced at the garden early in the year, and the work is now arranged so that while the undergraduate department at Schermerhorn building is open for students five days in the week, all the members of the staff have a portion of their time free for instruction or research at the garden for at least three consecutive days each week. All major work is carried on at the garden, and much of the minor work, although for the convenience of some students a portion of the minor work is carried on at the University. The undergraduates in Botany thus have more space and better facilities because of the removal of the graduate work. The courses for graduates have been increased in number from seven to twenty-one, and by placing certain of the courses under various specialists at the garden we have in effect tripled the staff of the Department and at the same time have been enabled to offer a much wider range of subjects to graduate students than heretofore. The advantages accruing to our graduate students are many, among which may be mentioned: (1) The very great increase of library facilities offered by the combination university and garden library, now amounting to nearly 8000 volumes. (2) The more extended facilities for research in the direction of greater space and more efficient apparatus. (3) The opportunities offered for the study and experimentation upon living plants in the conservatories and other plantations of the garden. (4) The direct contact with a large number of specialists engaged in research work along many and diverse lines. (5) The greatly increased range of subjects that can be elected for research, which have been mentioned above.

- 2. The equipment of the conservatory in the small room adjoining the physiological laboratory will make possible much more satisfactory work in plant physiology, and with the special apparatus for heating regulated by a thermostat, it will now be possible to maintain a proper degree of moisture and a fairly uniform temperature independent of the ordinary heating apparatus of the building. While this in no way lessens the need of a suitable greenhouse on the campus as mentioned in my report for last year, it furnishes facilities for elementary plant physiology and for the preparation of cultures of plants hitherto greatly needed.
- 3. The Summer School work has been placed under the direction of Professor Francis E. Lloyd of Teachers College, and two courses have been arranged for the summer session.

In conclusion I would call attention to the need for a closer correlation of the undergraduate work in Columbia College with that in Barnard College and Teachers College, to which reference was made in detail in my report for last year. The present conditions demanding early attention to this important factor of our undergraduate development have not changed since that report was made.

#### DEPARTMENT OF CHEMISTRY

### Professor C. F. CHANDLER

The work in Chemistry is fully covered in the report of the Department to the Faculty of Applied Science. Reference is made to this report for the work in Chemistry in the School of Pure Science.

### DEPARTMENT OF GEOLOGY

#### Professor JAMES F. KEMP

r. Educational Staff.—This has consisted of J. F. Kemp, Professor; Alexis A. Julien, Instructor and Curator; Arthur Hollick, Tutor; Gilbert van Ingen, Curator.

No changes were made in personnel during the year.

2. University Courses Given and Attendance on Each: Geology III. Economic Geology:
Graduate, candidate for M.A. Graduates, candidates for Ph.D. Special students. Second-year students from the School of Mines. Third- " " " " " " " " " " " " " " " " " " "
Geology VI. Petrology:
Graduate, candidate for M.A.  " " Ph.D.  3 Fourth-year students from the School of Mines.  Geology VII. Invertebrate Paleontology:
3 Graduates, candidates for Ph.D.
Geology IX. Paleobotany.
2 Graduates, candidates for Ph.D.
Geology I. General Geology:  16 Undergraduates.
<ul> <li>2 Special students.</li> <li>1 Sophomore from Columbia College.</li> <li>2 Juniors " " "</li> <li>8 Seniors " " "</li> <li>2 Third-year students from the School of Mines.</li> <li>1 Fourth-year student " " " " "</li> </ul>
Geology II. General Geology: 63 Undergraduates and graduates.
<ul> <li>2 First-year Mining Engineers.</li> <li>30 Second-""""""""""""""""""""""""""""""""""""</li></ul>

- 3. Work of the Fellow in Geology. The Fellowship in Geology has been held by Benjamin Felix Hill, M.A. As reported last year, Mr. Hill, while holding a scholarship, passed two months in field-work in Sonora, Mexico, in anticipation of his dissertation for Ph.D. Mr. Hill worked upon the preparation of this paper until late in the winter, when he became incapacitated by illness and therefore failed to complete his work. During the vacation Mr. Hill was in the field in New York, under the direction of Dr. F. J. H. Merrill, State Geologist, and for a brief period he also worked under my direction.
- 4. Researches and Publications of the Department. During the vacation Professor Kemp completed the field-work for the preparation of a geological folio for the U.S. Geological Survey upon a portion of the Adirondacks. He has been granted a half-year's leave of absence during next year, with the view, among other things, of preparing these notes for publication. The area embraces four quadrangles of the Survey's maps, and covers the high mountains and principal summer resorts in the northeast. A report upon the geology of the greater part of Warren Co. and upon the crystalline rocks of Washington Co. is in press with the State Geologist. An additional one, completing the former county and including the eastern townships of Hamilton Co., is in preparation. In January, 1900, the third edition of Kemp's Ore Deposits of the United States and Canada appeared. The book has been entirely rewritten, and enlarged with one hundred additional pages and eighty cuts. A second edition of the same author's Handbook of Rocks was brought out during the same month. The Nineteenth Annual Report of the Director of the U. S. Geological Survey, Part III, pp. 377-423, Plates LV-LXIII, is occupied by a paper from Professor Kemp upon "The Titaniferous Iron Ores of the Adirondacks," and in the School of Mines Quarterly for July, 1899, and November, 1899, is a review of the same variety of ores the world over.

Dr. Hollick's report on the "Fossil Plants of Louisiana" appeared in the recently issued report of the State Geologist.

He has in hand a report for the Maryland Geological Survey; and a Bulletin for the U.S. Geological Survey on the "Fossil Plants at Bridgeton, N.J."

- 5. Field-work of Officers of the Department. Professor Kemp passed a part of July in the field with the Summer School and all of August and September in work for the U. S. Geological Survey in the Adirondacks. He was accompanied by Messrs. Child and Yung, graduate students. Mr. van Ingen was employed during August by the State Paleontologist, Dr. J. M. Clarke, to investigate the lower Ordovician faunas in the Champlain valley. Several barrels of material were obtained, but the results are not yet completed.
- 6. Recommendations. The need of strengthening the Department in Physical Geography and in Paleontology and Stratigraphical Geology is still felt, as has been stated in former reports. An adjunct-professor should be appointed as soon as possible in each of these lines.

#### DEPARTMENT OF MATHEMATICS

### Professor J. H. VAN AMRINGE

I submit herewith my report on the Department of Mathematics for the academic year 1899–1900, so far as the operations of the same are related to the School of Pure Science.

1. The staff of the Department during the past year has been as follows:

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2. The following is an account, in tabular form, of the courses, number, and subjects, by whom given, and by how many attended:

#### COURSES AND ATTENDANCE

Instructors	Courses	Hours per Week	Students	Total
	(Number and subject as in Catalogue for 1899–1900)			
Prof. Fiske	21. Advanced Calculus	3	6 A.M. 1 A.B.	7
Mr. Keyser	22. Differential Equations	3	1 Ph.D. 4 A.M.	5
Prof. Fiske	23. Theory of Functions of a Complex Variable	3	6 Ph.D. 2 A.M.	8
Prof. Cole	25. Theory of Invariants	3	5 Ph.D.	5
Dr. Maclay	27. Analytical Theory of Curves of Double Curva- ture and Curved Surfaces	3	1 Ph.D. 2 A.M.	3

In addition to the courses noted above, the Department has given eight undergraduate courses in the College and the Schools of Applied Science.

- 3. Meetings attended by the instructors and university students of the Department were held at intervals of about two weeks throughout the year. At these meetings lectures, reports, or essays upon previously assigned topics were presented by the students. Lectures were also occasionally delivered by the instructors. The following subjects were treated:
  - I. The General Theory of Assemblages Prof. Fiske.

- VIII. Goursat's Proof of the Continuity of the Derivative of a Monogenic Function of a Complex Variable.. Mr. Bauer.
  - IX. Transcendental Numbers: Their
    Existence and Certain of their
    Properties..... Mr. Mitchell.
  - X. The Focal Properties of Surfaces of the Second Order and a Model Showing the Generation of the Ellipsoid by a Point Movement... Miss Ornstein.
- 4. The following is a list of the mathematical publications of the members of the Department during the year:

#### PUBLICATIONS

- Prof. F. N. Cole—Reports of Meetings of the American Mathematical Society, Bulletin of the American Mathematical Society, vol. vi., pp. 95-103, 177-184, 267-278, 365-372; Science, vol. x., p. 693, vol. xi., pp. 66-67, 394-395, 751-752; Report on the Mathematical Schedule of the Proposed International Catalogue of Scientific Literature, Science, vol. x., p. 167.
- Mr. C. J. Keyser—Review of P. A. Lambert's Differential and Integral Calculus and of D. A. Murray's Integral Calculus, *Science*, vol. x., pp. 413-415; Review of McMahon and Snyder's Elements of the Differential Calculus, *Science*, vol. xi., pp. 547-549; On Psychology and Metaphysics—

Being the Philosophical Fragments of Bernhard Riemann—(Translated from Riemann's Gesammelte Mathematische Werke), The Monist, vol. x., pp. 198-215.

During the past year Prof. Cole has continued to serve the American Mathematical Society as its Secretary and as editor of its *Bulletin*. In his editorial work he has had the coöperation of Professors Ziwet of the University of Michigan and Morley of Haverford College.

Columbia University, coöperating with nine other Universities, has assisted in the establishment during the past year of a new journal of mathematical research to be published under the auspices of the American Mathematical Society. The first number of this journal, which is to be known as *The Transactions of the American Mathematical Society*, appeared January 1, 1900. Its editors are Prof. E. H. Moore of the University of Chicago, Prof. E. W. Brown of Haverford College, and Prof. Fiske of Columbia University.

5. Of the seventeen students who during the past year have pursued University courses in mathematics, nine have made Mathematics their major subject, three Astronomy, two Physics, one Mechanics, one Education, and one Botany. Two candidates having Mathematics as their major subject completed the requirements for the degree of Master of Arts:

Henry Bedinger Mitchell,

Columbia University, E.E., 1898.

Minor subjects: Mathematics, Mechanics.

Essay: Transcendental Numbers: Their Existence, and Certain of their Properties, with an Introductory Chapter on Certain Theorems Regarding Infinite Assemblages.

Martha Ornstein,

Columbia University, A.B., 1899.

Minor subjects: Mechanics; History.

Essay: Focal Properties of Surfaces of the Second Order.

#### DEPARTMENT OF MECHANICS

Professor R. S. WOODWARD

Staff and Instruction.—During the academic year 1899–1900 the teaching staff of the Department was as follows:

R. S. Woodward. Ph.D.... Professor of Mechanics and Mathematical Physics.
M. I. Pupin, Ph.D.... Adjunct Professor of Mechanics.
J. C. Pfister, A.M.... Tutor in Mechanics.

The courses of instruction given during the year, and the number and classification of students in attendance, are shown in tabular form below, the numbers of the courses being those of the last annual catalogue.

Instructors	nstructors Courses		Students
Prof. Wood- ward	I. Analytical Mechanics	3	93 Engineering 3 College; I Graduate
Mr. Pfister	2 Elementary Mechanics	2	3 College
Mr. Pfister	3. Theoretical Mechanics	2	9 Graduate
Prof. Pupin	4. Thermodynamics	3, second half-year	53 Engineering
Prof. Pupin	6, 7. Theory of Dynamo	3	27 Engineering
Prof. Pupin	8, 9. Theory of Alterna- tors and Transformers	3	24 Engineering
Prof. Wood-	10. Advanced Mechanics	2	7 Graduate
Prof. Wood-	11. Theory of Potential	2	4 Graduate
Prof. Pupin	14, 15. Maxwell's Theory of Electricity and Magnetism	2	4 Engineering I Graduate
Mr. Pfister	19. Analytical Mechanics	2	11 Engineering
Mr. Pfister	20. Thermodynamics and Hydromechanics	2	4 Engineering 1 Graduate

Publications.—The principal publications of members of the Department during the year are the following:

By Professor Woodward.—I. Some recent works on Mechanics. Reviews of Theoretical Mechanics by A. E. H. Love, and Vorlesungen ueber theoretische Physik by H. von Helmholtz. Science, N. S., vol. x., No. 241, pp. 180-183. 2. Poincaré's Cours de Physique Mathématique. Re-

view, Science, N. S., vol. x., No. 242, pp. 213-217. 3. The Century's Progress in Applied Mathematics. Presidential Address before American Mathematical Society. Bulletin American Mathematical Society, 2d series, vol. vi., No. 4, pp. 133-163. Published also in Science, N. S., vol. xi., Nos. 263, 264. 4. An Elementary Method of Integrating Certain Linear Differential Equations. Bulletin American Mathematical Society, 2d series, vol. vi., No. 9, pp. 369-371. 5. The Advancement of Science. Inaugural Address of President-Elect of the American Association for the Advancement of Science. Science, N. S., vol. xi., No. 288, pp. 12-15.

By Professor Pupin.—I. Wave Propagation over Non-Uniform Conductors. Transactions of American Mathematical Society, vol. i., No. 3, pp. 259–286.

2. An Electrolytic Rectifier. Abstract in No. I, Bulletin American Physical Society. 3. A Farda meter. Transactions of American Institute of Electrical Engineers. 4. Wave Transmission Over Non-Uniform Cables. Transactions of American Institute of Electrical Engineers, vol. xvii., pp. 1–63.

Investigations.—Professor Woodward and Mr. J. W. Miller, Jr., Fellow in Mechanics, have been engaged during the year in studying the static and kinetic properties of helical springs, partly with a view to using them in determining the acceleration of gravity. Professor Woodward has also continued his studies of the problem of the gravitation constant.

Professor Pupin, in addition to the researches whose publication is cited above, has conducted investigations with students of the graduating class in Electrical Engineering, four members of which prepared their theses under his direction. Two of them, Messrs. Ambler and Barnes, assisted in the investigation of the hysteresis and Fou-

cault current losses in iron which has now been carried on for several years under the supervision of the Department of Mechanics. The other two assisted in the investigation of electrical waves and wrote a thesis on their experience in connection with this work.

Equipment.—The Department is pleased to record the receipt of the following pieces of new apparatus:

- 1 Electro-chronograph, made by Fauth & Co., Washington, D. C.
- r Electric, break-circuit, sidereal chronometer, made by Wm. Bond & Son, Boston, Massachusetts.
- I Steel metre and I white bronze metre of H-cross-section, divided to millimetres, made by the Société Genevoise, Switzerland.
  - 1 Support for metres, made by the Société Genevoise.

#### DEPARTMENT OF MINERALOGY

Professor Alfred J. Moses

Educational Staff.—The changes consist in the death of Thomas Egleston, Professor Emeritus, and in the promotion of Dr. Luquer from the grade of Tutor to that of Instructor. The staff now consists of:

Courses of Instruction.—The following tabulated statement shows the attendance upon the courses of instruction during the year:

			Pure				PPLI			Cor	LEGE	
	Courses	Ph.D.	A.M.	Special	First Year	Second	Third Year	Fourth Year	Special	A.B.	Special	Total
1 2 3 4 5 6 8 9	Blowpipe Analysis Crystallography General Mineralogy Mineralogy Silicates Mineralogy Non-Silicates Minerals of Building Stones Optical Mineralogy Physical Crystallography Physical Crystallography Longer Course		2 I 2	I		26 17 29	 3 4	I I 4	I	1	I I	54 56 8 56 29 18 37 4

Additions to the Equipment. The collections especially devoted to the undergraduate work have been very considerably improved and enlarged, especially by the creation of twelve duplicate collections for student use during lectures, by the assembling of several hundred crystals of common minerals, and by the modernizing of the introductory collection in the museum.

The purchases necessary in the remodelling of the student collections made a considerable inroad into the available funds. With the balance some needed additions were made to the equipment of the chemical laboratory. Two more microscopes, one hundred and fifty more rock sections, and the Grubenmann set of glass models of crystals of common rock-forming minerals were purchased for the work in optical mineralogy.

The facilities for crystallographic work were improved by the purchase of twenty-five hand goniometers, the Goldschmidt two-circle goniometer, the Stöber vertical circle, and the completion of the Kranz 743 set of wooden crystal models.

Publications—by Prof. A. J. Moses.—Mineralogy Crystallography and Blowpipe Analysis (with C. L. Parsons), New Edition Revised and Enlarged. New York, D. Van Nostrand Co. Thomas Egleston—School of Mines Quarterly, xxi., 197–218. Also Science, March 9, xi., 361–364. The Egleston Mineralogical Museum of Columbia University. Engineering and Mining Fournal, April 7, 1900, lxix., p 407. Simple Tables for the Determination of the Common or Economically Important Minerals. School of Mines Quarterly, xxi., 192. The Use of the Goldschmidt Two-Circle Goniometer. Fournal of Applied Microscopy, iii., 770–776.

By A. J. Moses and L. McI. Luquer—Notes on Recent Mineralogical Literature. *Journal of Applied Microscopy*, ii., 415, 481, 531, 577, 619, 653, 708. *Investigations*.—Mr. Whitlock has carried still further his

study of etch figures and has devoted his time especially to the pyrite group.

Dr. Luquer is occupied with the examination of some peculiar uranium- and zirconium-bearing minerals from near Bedford, N. Y., and has also arranged to obtain minerals that may prove of interest from the new Rapid Transit Tunnel.

Prof. Moses has in preparation a paper upon a crystallized pectolite from Weehawken, and measurements of garnets and zoisites from Ducktown, Tenn., of atacamite from Paposo, Chili, of calaverite and krennerite from Cripple Creek, and of a suite of minerals from Mazapil District, Mexico.

The Egleston Mineralogical Museum.—The action of the Trustees in naming the museum of this department the "Egleston Mineralogical Museum" fittingly connects the name of the founder of the School of Mines with that portion of the University in which he took the most pleasure. Dr. Egleston created a museum of 30,000 specimens in about thirty years with a comparatively small expenditure of money, nearly all of which was donated. It is not to be expected that any such rate of growth will be maintained, nor is this to be desired. To convert the present museum into a really great museum, adequately representing all phases of mineralogy and crystallography, will require not so many additions as substitutions. Careful lists must be prepared not only of the desiderata, under the present arrangement, but of the material needed to develop special collections illustrating phases of the work. For instance, the present systematic collection should be made complete not only as to species and varieties but also as to localities. A meteorite collection should be developed, and special collections of crystals, artificial minerals, genesis and alteration, and, in short, every important branch of the subject should have its carefully assembled and labelled illustrative specimens.

All this, however, means work, far more than the present force can perform, and it means also a larger sum available for purchase than the few dollars that can be spared from the department appropriation. With the income from \$50,000 a curator could be paid and the needed purchases gradually made.

#### DEPARTMENT OF PHYSICS

Professor O. N. ROOD

#### CHANGES IN STAFF

Several changes in the personnel of the Department have occurred since the submission of the last annual report: the resignation of Dr. T. G. White, Assistant, W. W. Comstock, A.B., Assistant, and W. C. Andrews, E.E., Assistant, were received; and to fill the vacancies thus occasioned, G. B. Pegram, A.B., A. C. Longden, Ph.D., and Bergen Davis, A.M., were appointed.

The staff of the Department as at present constituted is as follows:

OGDEN N. ROOD, A.M	Professor of Physics
WILLIAM HALLOCK, Ph.DAdjunct I	
REGINALD GORDON, A.B	
HERSCHEL C. PARKER, Ph.B	Tutor in Physics
CHARLES C. TROWBRIDGE, B.S	Tutor in Physics
FRANK L. TUFTS, Ph.D	Tutor in Physics
WILLIAM S. DAY, Ph.D	Tutor in Physics
W. B. Johnstone, C.E	Assistant in Physics
Homer M. Derr, A.B	
G. B. Pegram, A.B	Assistant in Physics
A. C. Longden, Ph.D	Assistant in Physics
BERGEN DAVIS, A.M	Assistant in Physics

#### LECTURE COURSES

Course I — General Physics—Light and Heat (First Half-year); Sound and Electricity (Second Half-year). Prof. Rood and Mr. Gordon.

First-year students in the Schools of Mine	es,
Chemistry, and Engineering	30
Freshmen in the College	37
Sophomores in the College	56
Juniors in the College	6
Seniors in the College	2
Specials in the College	6
University student	

70 - ( - 1		0
Total	 	238

Course 2 - Magnetism and Electricity (First Half-year); Sound
(Second Half-year). Prof. Rood.
Freshman in the College
Sophomores in the College 2
Juniors in the College
Senior in the College I Special in the College I
University students 4
Total
Course 3 — Units and Measurements (First Half-year); Exact
Electrical Measurements (Second Half-year). Prof. Hallock.
Second-year students in the Schools of Mines,
Chemistry, and Engineering
Seniors in the College 2
University students 2
Total105
Course 4—Light (First Half-year); Heat (Second Half-year).  Prof. Rood.
Seniors in the College 4
University students 6
Total10
Course 5 — Modes of Designing and Constructing Apparatus.  (First Half-year). Prof. Hallock.
University students3
Course 8 — Undulatory Theory of Light (Second Half-year).
Prof. Hallock.
University students6
Course 31 — General Physics (for students in medicine). Prof. Hallock.
First-year students in College of Physicians
and Surgeons172

With but few exceptions the students enumerated above received instruction in practical work in the laboratories of the Department. The following summary shows the division of the work in the laboratory, and the number of students in each course:

# LABORATORY COURSES

Stu	dents in Columbia College. Two hours per week: introductory course in the laborate	oratory.
	Seniors	5 1 8 2 7
	Sophomores	123 atory. 4 2
	Total Four hours per week: course in the laboratory.	13
	Seniors	3
	Senior	I 
	Total	2
	Total Columbia College students engaged in laboratory work	141
Stu	dents in Schools of Applied Science.	-4-
		d Class.
	Course in Mining Engineering 2 " "Civil " 11	
	" "Electrical "	
	" "Mechanical "28	
	" " "	7
	28 10.	4
	Total	132
	Students engaged in special research workFourth year Student engaged in special research workThird year	
	workFourth year	3
	Student engaged in special research	
	workThird year	I
	Students making good deficiency in en-	
	trance work3	
	Total number of students in Applied Science	- 39
	engaged in laboratory work	171
Coll	lege of Physicians and Surgeons.	
	First-year students actually attending in labora-	
	tories	156

The Barnard Fellowship was held by Dr. Heinrich Ries during the past year; it has now been assigned to Dr. John A. Mathews, a graduate of this University and a former Tutor in the Department of Chemistry. The Tyndall Fellowship has again been assigned to the present incumbent, Prof. R. B. Owens, who has continued his work on the waves emitted by thorium. A large number of graduate students took their major and minor subjects in Physics, and one of them, Mr. A. C. Longden, received the degree of Doctor of Philosophy.

#### PUBLICATIONS

- Prof. O. N. Rood—"On the Flicker Photometer," American Fournal of Science, September, 1899. "On Color-Vision and the Flicker Photometer," American Fournal of Science, October, 1899. "Über das Flimmer Photometer," Physikalische Zeitschrift, March, 1900.
- Prof. William Hallock—"Compound Harmonic Vibration of a String," A. A. A. S., Columbus, 1899, Scientific American Supplement, November 25, 1899. "The Compounding of Harmonic Vibrations with Fixed Phase Differences," Electrical Review, Jan 3, 1900. "The Octave as an Overtone of a Tuning-Fork," American Physical Society, April 25, 1900. Report on Physical Laboratory Work, N. Y. Sci. Teachers' Association, Bulletin of the Regents' Office, Christmas, 1899.
- C. C. Trowbridge—" Phosphorescent Substances at Liquid-Air Temperatures, *Science*, N. S., vol. x., Aug. 25, 1899, pp. 245-249.
- W. S. Day—An Article on Physics, Dodd, Mead & Co.'s International Year Book for 1899.
- T. G. White—Acting Editor of the Annals and Memoirs of the New York Academy of Science, and Secretary of the Section of Geology and Mineralogy of the same.

A. C. Longden—" Electrical Resistance of Thin Films Deposited by Cathode Discharge," American Journal of Science, June, 1900.

Papers presented to learned societies and public lectures delivered by members of the Department of Physics.

- Prof. O. N. Rood—"Variations in Normal Color-Vision," National Academy of Science, November 14, 1899.
- Prof. William Hallock—"The Nature of the Atom as Indicated by Recent Discoveries in Spectrum Analysis," N. Y. Acad. Sci., April 30, 1900.
  "The Geysers of the Yellowstone," Horace Mann School, May 29, 1900.
- H. C. Parker—"A New Method for the Calibration of Standard Rheostats," Am. Physical Soc., April 28, 1900 (to be published in the Bulletin of the Society, vol. i., No. 2). "A Percentage Bridge," Am. Inst. Elec. Eng., Philadelphia, May 16, 1900 (to be published in the Transactions of the Institute, vol. xvii., No. 5). "A Winter's Night on Mt. Washington"; Among the Clouds, vol. xxiii., No. 8, July, 1899.
- F. L. Tufts—"Methods of Comparing the Intensities of Sound," New York Physics Club, January 16, 1900. "The Use of the Condenser and Ballistic Galvanometer in Observations on Atmospheric Electricity," Am. Physical Soc.; abstract published in the Bulletin of the Society. Course of twenty lectures on "Elementary Physics" under the auspices of the Educational Alliance. Course of twenty lectures on "Elementary Chemistry" under the auspices of the Educational Alliance.

#### INVESTIGATIONS

Prof. O. N. Rood—A new method of measuring high electrical resistance (completed). New dielectric experiments (in progress).

- Prof. William Hallock—Tone analysis (in progress). Geyser action in the Yellowstone Park (completed). Construction of a harmonic analyzer (in progress). Synthesis of the vowel sounds (in progress).
- H. C. Parker—Improved calibration methods for electrical resistance standards. The various applications of the "Percentage Bridge" (in progress). The effect of "time lag" on temperature coefficients (in progress). Study of the behavior, under varying hygrometric conditions, of a set of high electrical resistances recently devised by Professor Rood on a new plan (in progress).
- C. C. Trowbridge—On the effect of magnetizing steel while it is cooling from red heat. Experiments on liquid air and phosphorescence, and the magnetic properties of steel at very low temperatures.
- F. L. Tufts—The flow of air under different pressures through granular materials. A laboratory method for the direct measurement of the velocity of sound through air and through obstructing porous media.
- Homer M. Derr—Thirty drawings of minerals in rock sections executed with the aid of the petrographic microscope. A considerable proportion of these will shortly be published.
- G. B. Pegram—Determination of the albedo of various mat surfaces (in progress).
- Bergen Davis—A new acoustic phenomenon; completed, and in hands of printer.

#### NEW APPARATUS

Electrostatic Voltmeter.

Two Electrometers, constructed by Prof. Rood.

Bohnenberger Electroscope, " " " "

Electroscope on a new plan, " " "

An Electrical "Percentage Bridge," devised by H. C. Parker.

Apparatus for the calibration of standard rheostats, made by W. C. Andrews.

Battery of 100 cells for the measurement of high resistance.

Seven Normal Clark Standard Cells for the measurement of E.

M. F.; made by H. C. Parker.

High-speed Chronograph.

Electric Make-circuit Seconds Pendulum.

Two Quartz Lenses.

Two Quartz Prisms.

Long Focus Spectrograph.

Recording Barometer.

Special Photometer.

Two large organ pipes especially fitted for research.

Longden's modification of the Bessell-Hagen air pump.

Selenium thin plates for illustrating Newton's rings.

Collection of platinum thin-film high resistances, made by A. C. Longden.

Dr. Hallock has loaned to the Department the following pieces of apparatus:

Standard Edison Kinetoscope with films illustrating the propagation of sound-waves.

Set of lantern slides of sound-waves illustrating reflection and refraction under various conditions.

A computing machine.

It will be noticed that the number of students belonging to the academic department and attending the lectures on Physics has increased by 16, while in the case of laboratory work the increase is 23. In the Schools of Applied Science the increase for lectures is 19, and for laboratory work 31. With University students the increase for lectures is 7, that for laboratory work 5.

Improved facilities for laboratory instruction have been devised and executed, and during the year the reports of meteorological observations made with the apparatus presented to the University by President Low have been regularly carried on by Professor Hallock.

# DEPARTMENT OF PATHOLOGY

SECTION OF BACTERIOLOGY

Professor T. MITCHELL PRUDDEN

The Section of Bacteriology in the Department of Pathology, at the Medical School, is primarily concerned with undergraduate instruction in those phases of Bacteriology which concern the Science and Art of Medicine.

But in addition to this, and in connection with the research work of the Department upon bacteria and other forms of micro-organisms, two advanced courses in Bacteriology (No. 2 and No. 3) are given. These are adapted to the requirements of candidates for higher degrees under the Faculty of Pure Science.

One student from the School of Pure Science has taken course No. 2 during the year under the direction of Dr. Philip Hanson Hiss, Instructor in Bacteriology, who fills the position made vacant by the retirement of Dr. Cheesman.

These advanced courses have been remodelled and expanded and are now so arranged that the student may, after having acquired the preliminary knowledge and technique, devote the last month of the course to such phases of the theme as he may select in view of his special aims.

The research work of the Department and its publications for the year, which especially concern the relationships of bacteria and other micro-organisms to disease, are included in the report to the Dean of the Medical Faculty.

# DEPARTMENT OF PHYSIOLOGY

The report of the Department of Physiology deals with work done under both the Faculty of Pure Science and the Faculty of Medicine. The said report will be found on p. 121, incorporated in that of the Dean of the Faculty of Medicine.

## DEPARTMENT OF ZOÖLOGY

Professor EDMUND B. WILSON

1. Staff.—In accordance with the plan of reorganization recommended by Professor Osborn in April, 1899, and

adopted by the Trustees, the direction of the Department was assumed at the beginning of the academic year by Professor Wilson, who returned to the University in September, after spending nine months abroad. Professor Osborn retains the DaCosta professorship of zoölogy and continues his graduate courses in Zoölogy and Vertebrate Palæontology, and in both these subjects is able to offer rare facilities for advanced work, through the coöperation of the American Museum of Natural History. Other changes included the promotion of Dr. G. N. Calkins from Tutor to Instructor, and of Dr. J. H. McGregor from Assistant to Tutor, the appointment of Dr. H. C. Crampton as Tutor (now Instructor-elect) in charge of the work at Barnard College, and that of Dr. F. C. Paulmier as Assistant. The reorganized staff is now as follows:

EDMUND B. WILSON, Ph.D	Professor of, Zoölogy
HENRY F. OSBORN, Sc.D	
Bashford Dean, Ph.D.*	Adjunct Professor of Zoölogy
GARY N. CALKINS, Ph.D	Instructor in Zoölogy
HENRY E. CRAMPTON, Ph.DIn	structor in Zoölogy (Barnard
distribution and the conjugate	College)
OLIVER S. STRONG, Ph.D Tu	ator in Zoölogy and Assistant
,	in Normal Histology
JAMES H. McGREGOR, Ph.D	Tutor in Zoölogy
FREDERICK C. PAULMIER, Ph.D	

As in preceding years, Dr. Strong, in addition to his courses in Histology and Neurology in the Department, has taken part in the courses in Normal Histology at the College of Physicians and Surgeons. Dr. Crampton's time has been entirely devoted to instruction in the zoölogical courses at Barnard College, of which he has now assumed entire charge. The work relinquished by Professor Osborn has been performed by Professor Dean and Dr. McGregor.

In the autumn of 1899 Professor Osborn was appointed "Assistant to the President" in the American Museum of Natural History, and has given increased attention to the general interests of the Museum. He has recently been appointed Vertebrate Palæontologist of the Geological Survey

<sup>\*</sup> Absent on leave in 1900-01.

of Canada, and has also been engaged by Director Charles D. Walcott of the United States Geological Survey to complete two large palæontological monographs and to supervise the other monographic work upon the fossil vertebrates; this brings with it the appointment as Vertebrate Palæontologist of the Survey, in succession to the late Professor O. C. Marsh.

2. Instruction.—The total number of students receiving instruction in the Department was 98 (as against 89 in 1899), of whom 27 were graduates and 71 were undergraduates in Columbia College, Barnard College, and the School of Applied Science. Of the graduates, 11 were pursuing major work in Zoölogy for the Ph.D. degree, and the remainder were minor Ph.D. and major or minor M.A. candidates. The distribution of work is shown in the following table:

Instructors	Courses	Hours per Week	Students	Total
Prof. Dean ) Dr. Calkins	1. Elementary Zoölogy	3 <sup>1</sup> / <sub>2</sub>	33 First year Appl. Sci.	33
Prof. Wilson Prof. Dean Dr. Calkins Dr. Crampton Dr. Strong Dr. McGregor	2. Elementary Biology	6–9	6 Seniors Col. College 10 Juniors " " 1 Soph. " " 1 Special " " 9 Barnard " 1 Graduate	28
Prof. Dean Dr. Calkins Dr. McGregor	3. General Zoölogy	9	4 Seniors Col. College 1 Special "" 6 Barnard " 1 Graduate	12
Dr. Strong	4. Comparative Neurology	4-6	4 First year P. & S. 2 Seniors Col. College 1 Special	7
Prof. Wilson Prof. Osborn Dr. Calkins Dr. McGregor	5. Comparative Zoölogy	12	10 Graduates	10
Prof. Wilson Prof. Wilson Prof. Osborn	6. Comparative Embryology 7. Cellular Biology 8. Morphology	1 6	13 Graduates 12 Graduates	13
Prof. Dean Dr. Strong	of Mammals 9. a Embryology of Fishes 13. Human Brain	6 1 4-6	4 Graduates 5 Graduates 2 Graduates 1 First year P. & S.	5 5
			2 Seniors Col. College	3

The general character of these courses has been the same as in preceding years, but several of the advanced courses have been made much more effective than hitherto. Course V, which forms the most important basis of the major work, has been extended by the addition of weekly seminars throughout the year, and a series of weekly conferences based upon Gegenbaur's Comparative Anatomy of Vertebrates. Course VIII has been conducted in a room set apart by the American Museum of Natural History, thus enabling students to carry on their laboratory work in the research rooms of the Department of Vertebrate Palæontology and in the exhibition halls of the Museum, where unequalled facilities for certain lines of work are provided. The Zoölogical Park has also afforded special opportunities for work in both these courses. Course III has been modified by the addition of an elective course in mammalian dissection, designed as a preparation for medical study. This course, optional as an equivalent to the work in Invertebrate Zoölogy, enables Seniors intending to study medicine to acquire a special training in the technical operations of dissecting, injecting, and the like, as well as an accurate acquaintance with the details of mammalian anatomy.

The journal club has met weekly throughout the year, with a membership of seventeen, and the historical seminar held weekly meetings during the second half-year with an attendance of ten to twenty. In addition to the regular instruction a very interesting course of six lectures on Regeneration and Experimental Embryology was given in February by Prof. T. H. Morgan of Bryn Mawr College. These lectures are to be published as the sixth volume of the *Columbia Biological Series*.

3. Fellow.—Mr. B. Arthur Bensley, Fellow in Zoölogy, in addition to major and minor work, has devoted his attention chiefly to the careful study of the palæontological collections of the American Museum, and has begun an investigation for a dissertation upon the comparative anatomy of the quadrate bone; special problems have also been assigned to him in the structure of the skull of the Monotremes and in

the foramina of the skull of mammals in general as an aid to classification. These will form subjects of special papers.

4. Researches in Progress.—Professor Osborn's investigations during the past year have been chiefly upon fossil reptiles, culminating in the publication of two memoirs upon the skeletons of a mosasaur and of a dinosaur, in addition to a number of minor contributions upon reptiles and mammals. His next most important research of the year has been the "Correlation of the Mammalian Fauna of Europe and America during the Tertiary Period"; this was presented in two presidential addresses before the New York Academy of Sciences in 1800 and in 1900, and published as the first articles in Volume XI. of the Annals of the Academy; this research will also be taken as the basis for a discussion upon "Tertiary Horizons" before the International Geological Congress of Paris in August. Professor Wilson has been mainly occupied with the completion of a revised and enlarged edition of his book on the Cell, which was published in May. He has also pursued investigations on the structure of protoplasm and the cell and experiments on regeneration in planarians and annelids. Professor Dean has been completing studies on the Devonian fishes of Ohio, on which he has been engaged for several years, and has made preparation for a biological trip to Japan and China, where he will pass the coming year engaged in embryological studies on rare fishes. Dr. Calkins has pursued investigations on the Protozoa, and has nearly brought to completion a volume on this subject for publication in the Biological Series. Dr. Strong has continued his investigations on the cranial nerves of lower vertebrates, on the technique of the Weigert method, and on other neurological subjects. Crampton has been engaged on an elaborate statistical study of the development of moths with reference to the problem of elimination and natural selection; he has also continued his experimental researches on the development of snails and ascidians. Dr. McGregor has been engaged, in conjunction with Professor Dean, upon an investigation of the development of the skull in the Australian lung-fish Ceratodus, which

promises to yield results of much interest. Dr. Paulmier has carried forward researches on the spermatogenesis of the butterflies and on the morphology of the testis in Hemiptera.

- Mr. F. B. Sumner has brought to completion a comparative research on the phenomena of gastrulation in the teleosts and ganoids, and has now in press a memoir on this subject to be published by the Academy of Sciences. Other researches by graduate students have included the following: H. B. Torrey on the problem of the reducing divisions in arthropods; P. M. Rea on the anatomy of the gilled earthworm Alma; R. A. Budington on the history of the ovarian eggs in dragon-flies; W. E. Kellicott on the development of the vascular system in Ceratodus with reference to the conditions in amphibians and ganoids; E. M. Van Harlingen on the morphology of ciliated cells; J. C. Torrey on the early embryology of rotifers and annelids; W. K. Gregory on the blood-vessels and lungs of Polypterus; Dr. G. A. Lawrence on the finer structure of the human cerebral cortex in health and in disease; C. E. Doran on the internal structure of the brain in a case of incomplete development of the cerebellum in a child.
- 5. Publications.—The following list includes the publications of 1898–99 as well as those of 1899–1900, since the former were not included in last year's report. (See *University Quarterly* for March, 1899.)
- Henry F. Osborn.—The Biological Problems of To-Day: Palæontological Problems (Discussion before the annual meeting of the American Society of Naturalists). Science, vii., No. 162, pp. 145-147.— Palæontological Notes. Ibid., vii., No. 162, pp. 164, 165.—Fossil Vertebrates in the American Museum of Natural History, vol. i. Collected Bulletins, 1892-1897 (with Wortman, Earle, and Matthew), Preface, pp. i.-vi.—A Complete Skeleton of Teleoceras fossiger. Notes upon the Growth and Sexual Characters of this Species. Bull. Am. Mus. Nat. Hist., x., Art. iv., 1898, pl. iv. and iv. A, pp. 51-59.—A Complete Skeleton of Coryphodon radians. Notes upon the Locomotion of this Animal. Ibid., x., Art. vi., pp. 81-91, pl. x.—A Placental Marsupial. Science, vii., No. 170, pp. 454-456.—The Extinct Rhinoceroses. Memoirs of the Amer. Mus. Nat. Hist., i., Part iii., 1898, pp. 75-165, plates xii. A-xx.—A Complete Skeleton of Teleoceras, the True

Rhinoceros, from the Upper Miocene of Kansas. Science, vii., No. 173, pp. 554-557.-A Complete Skeleton of Coryphodon radians. Notes upon the Locomotion of this Animal. Ibid., 1898, vol. vii., No. 174, pp. 585-588.—The Origin of the Mammalia. Amer. Nat., xxxii., No. 277, pp. 309-334.—Remounted Skeleton of Phenacodus primævus. Comparison with Euprotogonia. Bull. Am. Mus. Nat. Hist., x., No. 9, plates xii. and 4 text figures, pp. 159-165.—Address of the President at the Fifth Annual Reception. The New York Academy of Sciences. Science, 1898, vol. vii., No. 176, pp. 649, 650.—Evolution of the Amblypoda. Part i., Taligrada and Pantodonta. Bull. Am. Mus. Nat. Hist., x., Art. xi., 1898, pp. 169-218.—The New York Zoölogical Park. Science, 1898, vii., No. 179, pp. 759-764.—Additional Characters of the Great Herbivorous Dinosaur Camarasaurus. Bull. Amer. Mus. Nat. Hist., x., Art. xii., pp. 219-233; 1898, pp. 219-235.—Models of Extinct Vertebrates. Science, 1898, vol. vii., No. 182, pp. 841-845.—Senff Zoölogical Expedition to the Nile Valley. Ibid., viii., No. 199, pp. 541-543. -On Pliohyrax Kruppi Osborn, A Fossil Hyracoid, from Samos, Lower Pliocene, in the Stuttgart Collection. Proc. International Congress of Zoölogy, Cambridge, 1898.-Restoration of Extinct Vertebrates, in the American Museum of Natural History. Ibid. -The Origin of Mammals, Opening Discussion. Ibid.-Life and Works of Cope. Illustrating the Training of a Naturalist and the Essential Characteristics of a Great Comparative Anatomist. (Introduction Syllabus Lectures on the Vertebrata, by E. D. Cope.) Univ. of Penn., Phila., pp. 3-35.-Frontal Horn on Aceratherium incisivum. Relation of this type to Elasmotherium. Science, Feb. 3, 1899, pp. 161, 162.—The Origin of Mammals. American Journal of Science, vol. vii., February, 1899 .- Habits of Thylacoleo. Amer. Nat., Feb., 1899, pp. 174, 175.-A Complete Mosasaur Skeleton, Osseous and Cartilaginous. Memoirs of the American Museum of Natural History, i., Parts lv., pp. 167-189, Fig. 14, 1899.—A Skeleton of Diplodocus. Ibid., i., Part v., pp. 189-214, Fig. 14, Oct. 25, 1889.—Fore and Hind Limbs of Carnivorous and Herbivorous Dinosaurs from the Jurassic of Wyoming, Dinosaur Contributions, No. 3. Ibid., xii., Art. xi., pp. 161-172, New York, Oct. 30, 1899 .- A Skeleton of Diplodocus Recently Mounted in the American Museum. Science, N. S., vol. x., No. 259, pp. 870-874, 1899.—A Complete Mosasaur Skeleton, Osseous and Cartilaginous. Ibid., vol. x., No. 260, pp. 919-925, Dec. 22, 1899.—Intercentra and Hypopophyses in the Cervical Region of Mosasaurs, Lizards, and Sphenodon. American Naturalist, xxxiv., No. 397, pp. 1-7.-A Glacial Pot-Hole in the Hudson River Shales near Catskill, N. Y. Ibid., pp. 33-36.—The Geological and Faunal Relations of Europe and America during the Tertiary Period and the Theory of the Successive Invasions of an African Fauna. *Ibid.*, xi., No. 276, pp. 561-574, 1900.

Edmund B. Wilson,—Considerations on Cell-lineage and Ancestral Reminiscence, etc. Ann. N. Y. Acad. Sci., xi., 1, 1898, 27 pp., 7 figs.

—Parker and Haswell's Zoölogy (Review). Science, vii., 172, 1898.—The Structure of Protoplasm. Wood's Holl Biological Lectures, 1898, 20 pp., 4 figs.; also in Science, x., 1899.—Cell-lineage and Ancestral Reminiscence. Wood's Holl Biological Lectures, 1898, 21 pp., 5 figs.—The Structure of Protoplasm in the Eggs of Echinoderms and Some Other Animals. Journal of Morphology, xv., supplement, 1899, 29 pp., 2 plates.—The Cell in Development and Inheritance, Revised and Enlarged Edition. Columbia Biological Series, 1900, 483 pp., 194 figs.—Some Aspects of Recent Biological Research. International Monthly, July, 1900, 22 pp.

Bashford Dean.—On the Embryology of Bdellostoma stouti. A General Account of Myxinoid Development from the Egg and Segmentation to Hatching. Festschrift v. C. v. Kupffer, 1899, pp. 221, plates xii., text figs. 25.—Memorial Notice of Nathan Russell Harrington. Col. Univ. Quarterly, 1899, Dec., pp. 44-46.—Devonian Fishes for the American Museum. Science, N. S., vol. x., No. 261, 1899.—J. N. Baskett's "Story of the Fishes" (Rev.). Ibid., 1899, pp. 968-969.—On the Embryology and Phylogeny of a Chimæroid. Ibid., vol. ix., No. 266, 1899, p. 169.—Carl von Kupffer, his Life and Work (with bibliography). Ibid., No. 271, 1900, pp. 364-369.—The Jay Terrell Collection of Fossil Fishes. American Museum Journal, vol. i., No. 2, 1900, pp. 10-12.

Gary N. Calkins.—Mitosis in Noctiluca miliaris and its Bearing on the Nuclear Relations of the Protozoa and Metazoa. Journal of Morphology, xv., No. 3, 1899, pp. 711-772, 3 plates.—The Phylogenetic Significance of Certain Protozoön Nuclei. Annals N. Y. Acad. Sci., xi., No. 16, 1898, pp. 379-400, 1 pl.—Some Hydroids from Puget Sound. Proc. Boston Soc. Nat. Hist., xxviii., No. 13, 1899, pp. 333-367, 6 plates.—Das Tierreich. Sporozoa, by Alphonse Labbé (Review). Science, x., No. 255, 1899.—Traité de Zoölogie Concrête, Les Mesozoaires, Spongiaires, Delage et Hérouard (Review). Science, xi., No. 271, 1900, p. 390.—Nuclear Division in Protozoa. Wood's Holl Biol. Lectures, 1899 (in Press), 22 pp., 3 figs.—Report upon the Epidemic among the Brook Trout at Northport, L. I. N. Y. State Fish Commission Report, 1898, 20 pp., 8 plates (in Press).

Oliver S. Strong.—On the Cranial Nerves of Chimæra (Review). *Jour. Comp. Neurology*, viii., 1, 2, 1898.—On the Cranial Nerves of the Sturgeon (Review). *Ibid.*, viii., 3, 1898.

Henry E. Crampton.—Studies upon the Early History of the Ascidian Egg, Part i., Origin of the Yolk in Molgula. *Journal of Morphology*, vol. xv., suppl., 1899, pp. 28, 1 plate.—An Experimental Study

- upon Lepidoptera (Grafting and Color-production). Arch. Entwicklungs Mechanik, ix., 2, 1899.
- James H. McGregor.—The Spermatogenesis of Amphibia. Journal of Morphology, vol. xv., Supplement, 1899, pp. 57-104, 2 plates.
- Frederick C. Paulmier.—Chromatic Reduction in the Hemiptera. Anal. Anz., xiv., 1898, pp. 49, 2 plates.—The Spermatogenesis of Anasa tristis. Jour. of Morph., vol. xv., Sup., 1899, pp. 223-272, 2 plates.
- Bradney B. Griffin.—Description of Some Marine Nemerteans of Puget Sound and Alaska. Edited by Dr. Bashford Dean. Annals N. Y. Acad. Sci., xi., 1898, 26 pp., 9 figs.—Studies on the Maturation, Fertilization, and Cleavage of Thalassema. Jour. Morph., xv., 5, 1899, 50 pp., 4 plates.
- Nathan R. Harrington.—The Calciferous Glands of the Earthworm, with Appendix on the Circulation. Jour. Morph., xv., Suppl., 1899, 63 pp., 4 plates.—The Reactions of Amœba to Lights of Different Colors. (With Dr. Edward Leaming.) Amer. Journ. of Physiol., iii., 1899, 10 pp., 1 plate.
- Albert Mathews.—The Changes in Structure of the Pancreas Cell, A Consideration of some Aspects of Cell-metabolism. Jour. Morph., xv., Suppl., 1899, 51 pp., 3 plates.
- C. Judson Herrick.—The Cranial and First Spinal Nerves of Menidia. Archives of Neurology and Psychopathology, ii., 1899; also Journal Comp. Neurology, ix., 298 pp., 7 plates. Awarded the Cartwright Prize for 1899.—Report on a Series of Experiments with the Weigert Methods, etc. Jour. Comp. Neurology, July, 1898.
- 6. Equipment.—The new laboratories, though admirably adapted to their purpose and well furnished, have as yet received only a partial equipment for the varied work of the Department. Important additions have, however, been made during the year through the aid of generous gifts by Mr. Charles H. Senff, which have greatly increased the effectiveness of the facilities for instruction and research. The funds thus supplied have been devoted to the purchase of apparatus, models, teaching materials, and preparations, and to the preparation of lecture-charts and microscopical and anatomical preparations. The new apparatus includes a large Zeiss projection and photomicrographic apparatus of the most approved form, by means of which lantern-slides, microscopical preparations, and minute animals can be projected upon

the screen; this has already proved a most important adjunct to instruction. Other acquisitions include twenty Leitz compound microscopes, three binocular preparationmicroscopes, a number of simple microscopes; accessory microscopical apparatus including mechanical stages, camera lucidas, and micrometers; two Minot microtomes with accessories, and a large number of small aquaria. A room in the attic has also been fitted up as a preparation room for rough work, with an extra water-tank for the maintenance of circulation in the aquaria during holidays. The collection of lecture-charts has been largely increased, and a large number of new anatomical, embryological, and microscopical teaching-preparations have been prepared and placed on exhibition. One of the most valuable acquisitions is a collection of marsupials and monotremes from Australia, including eggs and embryos of the monotreme Echidna, and many embryonic marsupials.

The members of the Department are deeply grateful to the generous donor of the funds by means of which the effectiveness of the laboratory has been so greatly increased. The thanks of the Department are especially due also to the authorities of the American Museum of Natural History for their hearty coöperation with our work. Acknowledgment is also due to Dr. Arthur Willey, of London, formerly Tutor in the Department, for the gift of four fine specimens of the rare soft parts of the pearly *Nautilus*.

7. Field-work.— The foundation and organization of a second zoölogical expedition to the Nile in search of embryological material of *Polypterus* was described in last year's report, and the funds for the expedition were provided through the generosity of Charles H. Senff, Esq. The party, including Nathan R. Harrington, Francis B. Sumner, and Dr. Reid Hunt, proceeded in the early summer to Atbara, in the Soudan, and remained several weeks, securing a considerable quantity of valuable anatomical material, including *Polypterus*, electrical fishes, and other rare forms, but without obtaining the developmental stages most desired. The work came to a sad end through the death of

Mr. Harrington from fever on July 27th,\* followed by the severe illness of Mr. Sumner. Upon his recovery Mr. Sumner, with Dr. Hunt, returned to Europe and passed two months at the Zoölogical Station at Naples, collecting much valuable material for the study of fish-embryology. During the same summer Professor Dean, with Mr. W. K. Gregory, passed a considerable time at the Pacific laboratory at Monterey, California, and secured a large amount of exceedingly rare embryological material for the study of Bdellostoma and Chimæra. Professor Wilson and five other members of the staff passed a considerable part of the summer at Wood's Holl Biological Laboratory, where Messrs. Strong, Crampton, McGregor, and Paulmier took part in the regular instruction in zoölogy and embryology. Professor Osborn made a palæontological trip to Wyoming in charge of collecting parties from the American Museum; and Mr. J. C. Torrey occupied a table (John D. Jones scholarship) at the marine laboratory at Cold Spring Harbor.

The work of the coming summer promises to equal in importance that of preceding years. Professor Wilson, with Dr. Crampton and two graduate students, will work first at the newly established laboratory of the U. S. Fish Commission at Beaufort, N. C., and afterwards at Wood's Holl and on the coast of Maine. Professor Osborn will attend the geological congress at Paris as a delegate from the New York Academy of Sciences. Professor Dean, who will be absent on leave during the coming year, will leave in June for Japan for a prolonged period of investigation on the embryology of rare sharks and other fishes of the Asiatic Pacific region. Drs. Strong and McGregor will visit a number of European laboratories during the summer, and Dr. McGregor expects to make a special study of fossil reptiles in the Royal Cabinet of Natural History in Stuttgart.

A word of acknowledgment is due to members of the staff and graduate students for the enterprise shown in carrying on summer field-work. Most of this work has

<sup>\*</sup>A full memorial notice of Mr. Harrington's life and work was published in the University Quarterly for December, 1899.

received little or no direct aid from the University, having been supported by contributions from friends of the laboratory, and much of it has been done entirely at the private expense of members of the Department, who have thus procured valuable material not only for their own use but for that of students in the laboratory. The spirit that has been shown in this direction is worthy of every encouragement, and to it have been due many of the most valuable results of research in the Department.

General.—The income of the Dyckman Fund for the encouragement of biological research, amounting to \$400, has been expended in two grants, one of \$250 to defray the expenses of Professor Morgan's lectures, reported above, and one of \$150 to Mr. E. M. Van Harlingen to enable him to pursue investigations in cellular biology during the year. Wm. E. Dodge, Esq., has continued his subscription of \$250, in the name of Columbia, to the University table at Naples, and for the coming year the remaining half of the subscription will be met by Harvard University. The table will be occupied during the summer by Mr. F. B. Sumner, a former graduate student and now instructor in the College of the City of New York, and after October 1st, by Professor Porter, of the Harvard Medical School. investigators' tables (\$50 each) at the Wood's Holl Marine Laboratory are supported by the University, both of which will be occupied this summer, and a table is also available at the Cold Spring Harbor Laboratory through a scholarship of the value of \$250, placed at the disposal of Columbia by the Wawepex Society through its president, Mr. W. R. T. Jones (Columbia class of 1850).

On the whole the Department is able to report a successful year, showing a substantial increase of the number of students (notably in the graduate department) and a long forward step in the laboratory equipment. This is now fairly adequate for our needs, but still demands many additions before it can meet the full requirements of the varied courses undertaken. The anatomical, histological, and embryological teaching collections still form no more than a

good beginning; additional lecture-charts and lantern-slides are greatly needed; and even a small increase in the number of students will necessitate the purchase of additional microscopes and other working apparatus. The greatest present need of the Department is a publication fund of \$500 per annum through which a regular series of publications from the laboratory may be established. Owing to the lack of such a fund, the proposed *Columbia Zoölogical Contributions* have had to be for the present abandoned, although material is in hand for at least three volumes of the proposed series. Next to this the research work would be most effectively furthered by the foundation of a fellowship in zoölogy on a basis similar to that of the Dyckman Fund.

## BARNARD COLLEGE

## REPORT OF THE ACTING DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

I have the honor to submit the following report of the condition of Barnard College and of the work done there during the past year, the eleventh since the opening of the institution in 1889.

It is with deep regret that I must chronicle at the outset of my report the retirement of Barnard's first Dean, Mrs. George Haven Putnam (formerly Miss Emily James Smith), whose resignation, coming as it did just at a time when the new agreement with the University had placed the College upon a far more satisfactory footing than ever before, casts the only shadow upon the otherwise bright record of the past year. Only those intimately associated with Barnard can fully realize how much of its extraordinary progress during the past six years it owes to her enthusiasm, high standards of scholarship, and tenacity of purpose. The vacancy caused by her resignation, which took effect February 1st, was filled ad interim by the President's appointment under the new agreement of an Acting Dean.

The total number of women registered either as undergraduate and graduate students, or as special students in music, during the year amounted to 333, distributed in the following groups:

Undergraduates:		
Seniors	40	
Juniors	40	
Sophomores	37	
Freshmen	54	
Special students (who had passed the entrance examinations or their equivalent but who were not		
candidates for a degree)	2 I	
Students from Teachers College attending one or more		
courses in Barnard College	18	
-		210
Graduate students		82
Special students who devoted themselves to music and		
did not pass the entrance examinations		4 I
	-	
Total		333
The undergraduate students came from the following	Sta	tes:
Colorado	r	
Connecticut	7	
Illinois	I	
Maine	I	
Maryland	I	
Massachusetts	2	
Minnesota	I	
Missouri	I	
New Jersey	32	
New York City	88	
New York State (exclusive of New York City)	66	
Ohio	I	
Ontario, Canada	2	
Pennsylvania	4	
Virginia	r	
Wisconsin	r	
	210	

The residences of the graduate students were as follows:

California	2
Connecticut	3
England	1
Illinois	I
Kentucky	I
Maine	1
Massachusetts	2
Minnesota	I
Nevada	1
New Jersey	6
New York City	43
New York State (exclusive of New York City)	I 2
Ohio	4
Pennsylvania	3
Virginia	1
·	82
	02

Twenty-four students were admitted on certificate from other colleges.

No student is accepted as a candidate for a degree or as a special student (except in music) unless she presents a certificate of honorable dismissal from some college or university of good standing, or a Regents' Academic Diploma, which is accepted in lieu of an examination in the subjects which it specifically covers. It will be noted that practically all students admitted on certificate (twenty-one out of twenty-nine) either entered the Senior class or became special students.

Five students were admitted to the Freshman class,—two on Regents' Academic Diplomas, one each from Bryn Mawr, Vassar, and the Royal University of Ireland: one to the Sophomore class from the Woman's College of Baltimore: two to the Junior class,—one each from Wellesley College and Bryn Mawr College: twelve to the Senior class,—five from Teachers College, and one each from New York University, Radcliffe College, the University of Chicago, Wellesley College, Western Reserve University, Mount Holyoke College, and Geneva College: and nine as special

students in the College,—two from Smith College, and one each from Teachers College, Northwestern University, Syracuse University, Cornell University, Bryn Mawr College, Wellesley College, and the Woman's College of Baltimore.

One student was admitted by examination to the Junior class.

The number of Freshmen admitted provisionally, *i.e.*, with entrance conditions, was twenty-seven; of these eight were admitted to full standing at the end of the first half-year. The probationary period of the rest was extended.

Of the students who withdrew during the academic year one was a Senior, one a Freshman, two special students, and two from Teachers College.

One student from Teachers College died during the academic year.

Of the fifty-four Freshmen, one was a member of the previous Freshman class, who had been degraded on account of deficiency in some required course of that class.

Of the Seniors, thirty-eight fulfilled the requirements for the degree of A.B. in June, 1900, and one failed to fulfil entirely these requirements and was not graduated.

Students are classified in three groups, according to the topics presented by them for entrance.

Choice of

Candidates for admission to the Freshman class Studies by were required to pass satisfactory examinations the Freshin English, elementary mathematics, and Latin, and also in one of the following groups of subjects:

Of the new members of the Freshman class, twenty-five entered in Group I, and fourteen in each of the Groups II and III.

The required number of hours of attendance a week for all groups in the Freshman class is fifteen.

The prescribed studies for students entering in Group I amount to twelve hours a week, and are Latin or Greek, German, mathematics, and rhetoric; the elective studies, of which one must be taken, are chemistry, English, French, German, history, Greek or Latin, and physics.

[NOTE—The elective studies hereinafter enumerated do not include optional or extra courses.]

The studies chosen by the twenty-five students who presented for entrance the subjects in Group I were as follows:

Greek b	y 16 students
French "	5 "
History "	3 "
Latin "	
Physics "	2 "
Chemistry "	ı "
English"	ı "

The prescribed studies for students entering in Group II are the same as for students entering in Group I, with the exception that French is required instead of German; and the elective courses are the same with the exception that there is no course in French that can be chosen by students entering in this group.

The choice of electives made by the fourteen students in Group II was as follows:

Greek	by	8 st	udents
Chemistry	"	3	"
History			
Latin		2	"
Physics	"	2	"

It will be noted that of the thirty-nine Freshmen in Groups I and II twenty-four continued the study of Greek as well as of the required Latin during the year.

Freshmen entering in Group III were required to take six hours of prescribed studies and three three-hour elective

courses. The prescribed studies are Latin and rhetoric, and the elective courses are chemistry, English, French, German, Greek, history, mathematics, and physics.

The studies chosen by the fourteen students entering in Group III were as follows:

French b	уп	students
Mathematics "	10	"
English"	8	"
German "	6	"
History"	5	"
Chemistry "		"
Italian (by special permission) "	I	"

The required number of hours of attendance a week for the Sophomore class was sixteen. Students in Groups I and II are required to take seven hours of prescribed

Choice of studies and nine hours of elective courses. The Studies by prescribed studies are history, rhetoric, and a Sophomores science (chemistry, botany, or physics), unless a student has elected a science during the Freshman year.

Of the thirty-seven Sophomores, nineteen had entered in Groups I and II, and eighteen had entered in Group III. Of the nineteen in Groups I and II, three were not required to elect a course in natural science in the Sophomore year, and the remainder made the following selections: eleven elected physics, three botany, and two chemistry.

In addition to this the following studies were chosen:

Latin (in which subject 3 courses were elected).		14
English (in which subject 2 courses were elected)		11
German (in which subject 3 courses were elected)		10
Greek (in which subject 4 courses were elected)	11	
Deduction for repetition	2	9
Mathematics (in which subject 4 courses were		
elected)	13	
Deduction for repetition	7	6
French (in which subject 2 courses were elected)		5
Philosophy (in which subject I course was		
elected)		4
Psychology (in which subject I course was		
elected)		4
Chemistry (in which subject 1 course was elected)		1

Sophomores in Group III had four hours of prescribed studies and twelve hours of elective courses. The prescribed studies are rhetoric and history. Of the elective studies, the following choice was made by the eighteen students entering in that group:

English (in which subject 3 courses were elected)	18	
Deduction for repetition	2	16
Latin (in which subject 3 courses were elected)	15	
Deduction for repetition	2	13
French (in which subject 1 course was elected)		12
German (in which subject 4 courses were elected)		7
Psychology (in which subject 1 course was		
elected)		6
Philosophy (in which subject I course was		
elected)		5
Physics (in which subject 2 courses were elected)		4
Chemistry (in which subject 2 courses were		
elected)		3
Greek (in which subject 2 courses were elected)		3
Political Economy (in which subject 1 course		
was elected)		3
Zoölogy (in which subject 1 course was elected)		3
Rhetoric (in which subject 3 courses were elected)	3	
Deduction for repetition	1	2
Botany (in which subject 1 course was elected)		I
History (in which subject 1 course was elected)		1
Italian (in which subject 1 course was elected)		1

Of the fifteen hours a week required of the members of Choice of the Junior class, three hours are prescribed for Studies by the studies of philosophy and political economy the Juniors and the remainder are given to the elective courses.

The studies chosen by Juniors were as follows:

Rhetoric (in which subject 5 courses were		
elected)	62	
Deduction for repetition	24	38
Latin (in which subject 5 courses were elected)	38	
Deduction for repetition		25

Education (in which subject 11 courses were elected).....

Deduction for repetition 30

23

Latin (in which subject 11 courses were		
elected)	29	
Deduction for repetition	10	19
Philosophy (in which subject 2 courses were		_
elected)		19
English (in which subject 6 courses were		-
elected)	22	
Deduction for repetition	4	18
Rhetoric (in which subject 3 courses were	-	
elected)	13	
Deduction for repetition	4	9
German (in which subject 8 courses were	•	,
elected)	12	
Deduction for repetition	4	8
French (in which subject 2 courses were	•	
elected)		8
Greek (in which subject 2 courses were		
elected)		7
Italian (in which subject 4 courses were		'
elected)	8	
Deduction for repetition	2	6
Anthropology (in which subject 1 course was	_	
elected)		3
Psychology (in which subject r course was		3
elected)		2
Music (in which subject 2 courses were		_
elected)		1
Romance Philology (in which subject 1 course		
was elected)		1
Romance Seminar		1
Science of Language		I
		•
IN PURE SCIENCE		
Zoölogy (in which subject 2 courses were		
elected)		6
Mathematics (in which subject 5 courses were		
elected)	7	
Deduction for repetition	2	5
Botany (in which subject 1 course was elected)		3
Chemistry (in which subject 3 courses were		
elected)		2

Of the four prizes offered to students of Barnard College, only one, the Hermann Botanical Prize, is open Prizes and to members of all four classes. It is a prize of Scholar-shop awarded annually to the most proficient undergraduate student in botany. It was won this year by a Senior, Susan Matilda Germann.

The Chemistry Prize of \$25, offered annually for excellence in Sophomore chemistry, was not awarded in 1900.

The Kohn Mathematical Prize of \$50, founded by Mrs. S. H. Kohn, is awarded annually to a Senior for excellence in mathematics. Competitors for this prize must have pursued the study of mathematics continuously during their college course. In 1900 this prize was not awarded.

The Hoblitzell Medal, of the value of \$100, founded by Miss Lavinia H. Van Westerveldt Dempsey, was awarded to a member of the graduating class who presented the best essay on the "Cause of the Failure of the Dutch Colonization in North America," Florence Theodora Baldwin.

Scholarships covering the whole amount of the tuition fee were granted to two members of the Freshman class, to five members each of the Sophomore and Junior classes, and to seven Seniors. Scholarships amounting to one half the tuition fee were granted to three Sophomores, two Juniors, and three Seniors.

The Trustees' Competitive Scholarship of \$150, which is awarded annually to the student who is examined in June and who passes the best complete entrance examination in all subjects, was held during the past academic year by Laura Randolph Seguine, from the Staten Island Academy.

The Lucille Pulitzer Scholarship, which consists of the income from a fund of \$10,000 given in 1899 by Joseph Pulitzer in memory of his daughter, is awarded by the Trustees to the undergraduate student entering the College from the city of New York who is found to have passed the best examinations and to have shown herself to be most worthy in every way. This scholarship was won in June of 1899 by Helen Louise King, from the Wadleigh High School, New York City.

Twelve scholarships, founded by the Trustees of Columbia University in 1895, in recognition of the gift to Columbia University by President Low of a memorial building for the University Library, are open for competition to candidates for admission to Barnard College who are residents of Brooklyn, N. Y., and have received their training in either the public or the private schools of that city. As a rule, three of these scholarships are awarded annually to the three qualified competitors who are examined at Barnard College in June and pass complete entrance examinations in all subjects. In 1896, however, none of these scholarships was awarded. In 1897, one was given to Helen Maria Wright, from the Girls' High School, Brooklyn, N. Y., and she still holds it. In 1898, three scholarships were awarded to other graduates of the Brooklyn Girls' High School, Ada Blanche Clouse Neiswender, Grace Malvina Peters, and Jeannette Rowland Seibert, all of whom still hold their scholarships. In 1800, Brooklyn Scholarships were

given to Mary Frederica Harrison and May Amerman Johnson, both of the Girls' High School, Brooklyn, and to Madelein Dayrell Skinner, of the Packer Collegiate Institute. Five Brooklyn Scholarships, three of the series of 1896, and two of the series of 1897, were used during the past academic year as graduate scholarships. As such they were held by the following alumnæ of Barnard College: Ella Roselle Lathrop, of Bridgeport, Conn., Martha Ornstein, of New York City, Alice Jane Gray Perkins, of Schenectady, N. Y., Edith Parker Striker, of East Orange, N. J., and Amelia Wohlfarth, of New York City.

The whole number of applicants for admission to Barnard College in June, 1900, was one hundred and fifty-six. Of these one hundred and three were applicants for the full and final examinations and fifty-three were candidates for the preliminary examinations. Thirty-seven of the former candidates were admitted in June, 1900, sixteen without conditions, and twenty-one with entrance conditions.

The applicant who passed the best complete entrance examinations in June, 1900, was Dora Russell Nevins, to whom both the Trustees' Competitive Scholarship and a Brooklyn Scholarship of the series of 1900 were awarded. The other Brooklyn Scholarships of the same series were not awarded in June.

The past year has witnessed what the friends of Barnard may flatter themselves is a final and altogether beneficent adjustment of the relations between the women's College and the University. I need refer here only to the incidental effects of the new agreement upon the educational administration of the College, as I learn that the President is presenting the change from the standpoint of the University in his own report. The creation of a separate Faculty consisting of those professors in the University who give instruction at Barnard permits a far more satisfactory system of administration than has hitherto been possible. The responsibility no longer falls upon the Dean alone but is shared by the several standing committees of the Faculty, which

consider and act upon questions relating to the curriculum, scheme of attendance, award of scholarships, honors, etc., and all applications for admission to the institution now pass through the hands of the Barnard Committee on Admissions.

I wish to express the obligation of the institution to the members of the new committees, whose cordial and ready coöperation with the Acting Dean is but one of the many indications of the hearty welcome extended to Barnard by the officers of the University, of which she has now become, from an educational standpoint, an integral part. To the Chairman of the Barnard Committee on Admissions a special debt of gratitude is due for the untiring energy and the uniform conscientiousness and insight that he has shown in the discharge of his laborious duties. The system devised by the Committee on Admissions of Columbia College, which Professor Earle, Chairman of the Barnard Committee on Advanced Standing, has adopted, insures the maximum expedition and certainty in the disposal of the intricate cases of advanced standing, of which a considerable number present themselves every year.

The Faculty of Barnard held its first meeting for organization March 15th. It fixed the time of regular meetings at 4.30 P.M. on the last Monday of each month. In accordance with this rule it met twice more during the rest of the academic year.

In June the College issued its first regular catalogue which contained the announcement of the courses to be given in the coming year.

During the academic year 1896-97, the year preceding the removal of the College to the new site, there were but eighty-five students enrolled as candidates for the bachelor's degree. Since that time the annual gain has been almost exactly thirty per cent.

The applications for examinations and the examinations which took place in June last (1900) indicate that the increase of students is likely to be unprecedented, and that it will raise the number of candidates for the bachelor's degree to

towards two hundred and twenty-five, a gain of over thirtyone per cent. It is obvious that should the regular ratio of increase during the past three years be maintained during the coming three years, the number of candidates for the bachelor's degree will reach nearly five hundred at the end of This not only renders imperative some other that period. provision for the accommodation of those students who are now occupying Fiske Hall as a dormitory, since that building will soon be in demand for lecture-room and laboratories, but it emphasizes the necessity for a students' hall which shall supply a comfortable place for study and rest for the numerous women who live in the more or less distant portions of the city or in the suburbs. Our educational facilities will never be fully available so long as the students have no comfortable place to spend the time when they are not actively occupied in the lecture-room or laboratory. Nor will it be possible to permit the widest range of choice of studies so long as the Committee on Curriculum and Scheme of Attendance feels constrained to concentrate all the studies possible in the morning and early afternoon, on account of the convenience of those who have no rooms in the neighborhood, and who must find it very difficult to utilize the time between the lectures to the best advantage.

In this way it is clear that the very success of the plans of the Trustees of Barnard in the past is already beginning to open up new vistas of needs and opportunity. May not the Alumnæ and the friends of Barnard and the supporters of the higher education of women in our great city reasonably hope soon to see a new group of buildings rising to the west of the present group, with another and still more charming court opening upon the majestic Hudson, where all the students, whether they choose to live near the College or at a distance, shall alike find a home and place for work and recreation?

Very respectfully submitted,

JAMES HARVEY ROBINSON,

Acting Dean.

## TEACHERS COLLEGE

#### REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

I have the honor to submit the following report of the work of Teachers College for the academic year 1899-1900.

The year has been one of the most successful years in the history of the College. I refer not only to tangible results General such as can be demonstrated in statistics and Progress financial reports, but also to those evidences of intellectual and professional advancement which have been such a marked feature of the past year. Student affairs have been most satisfactory. No case of discipline has been reported to me during the year, and the tone of student life has been constantly improving. Students have been taking an increasing interest in class and departmental organizations, and the effort has been made through these organizations to strengthen the work of the various departments and maintain discipline and order throughout the College.

The reorganization of the College work, which was begun a little over two years ago, is now practically settled and Changes statutes have been adopted which meet the in Adminum unanimous approval of the College officers. The istration internal readjustment, rendered necessary in most departments by recent changes in the policy of the College, has been steadily advancing. Old courses of study have been worked over anew, and new courses have been

added to meet the demands of graduate students. The remarkable growth in the number of students, which was noted in my last report, has been maintained in the enrollment of the past year; moreover, the quality of scholarship secured far surpasses that of any previous year.

The following comparative tables give some indication of the progress made and the scope of our influence upon the teaching profession:

## COMPARATIVE TABLE OF STUDENTS' ENROLLMENT

Regular Students-Candidates for: 1897-9	98 1898-	-99 189	99-19	000
Higher Diploma o	-		87	
Secondary Diploma 5	15		45	
Elementary Diploma 37	67		I I 2	
Kindergarten Diploma 14	20		26	
Fine Arts Diploma o	24		29	
Domestic Art Diploma o	3		9	
Domestic Science Diploma 5	12		23	
Manual Training Diploma 11	72 18	213	16 3	347
Special Students—not Candidates for			_	
a Diploma	65	84 ·		63
Students from other Departments of	3	•		Ü
the University:				
Faculty of Philosophy 9	11		15	
Faculty of Political Science o	0		1	
Faculty of Pure Science o	1		2	
Columbia College o	4		5	
	32 22	38	21	44
		Ū		
College Students, total	169	335		154
Pupils in Schools:				
Horace Mann School	395	534	56	7
Experimental School	0	0	5	
				_
	395	534	62	6
Extension Students	299	1173	75	0

The increased number of students in the graduate courses, *i. e.*, candidates for the Higher Diploma and Secondary

Diploma, is especially significant. Candidates for the Higher Diploma must be college graduates or mature students capable of doing graduate work. Candidates for the Secondary Diploma, which qualifies for teaching in high schools, academies, and other secondary institutions, must have received a college degree prior to graduation from Teachers College. The academic training of students in the other professional courses also shows marked improvement. In all except one of these courses some college graduates have been enrolled. The following table shows the character of the previous academic training of the Training of students in all courses. A few students with irregular training have been admitted to most departments, but the majority of special students are working in the Fine Arts, where their superior technical ability materially strengthens the practical work of the Department. Graduates of secondary schools who have not had a normalschool or college training are required to complete a two-years' collegiate course preparatory to specializing along professional lines.

## COMPARATIVE TABLE OF STUDENTS' ACADEMIC TRAINING

College Graduates		1898-99 81	1899–1900 100
Students with partial College Course		42	54
Normal School Graduates Secondary School Graduates		48 94	97 130
Students with irregular Training	61	70	85
	169	335	466
Less Names of those counted both as College Graduates and Normal			
School Graduates	• • • • • • •	• • • • • • • •	12
			454

Colleges and Universities Represented

The following list shows that our students reparate this year 66 colleges and universities and 39 State normal schools, as against 58 colleges and universities and 21 State normal schools in 1898-99.

## COLLEGES AND UNIVERSITIES

		•	
		1899–1900 er of stude	nto
1	Adelphi College	T	nts.
2	Albion College	ı	
3	Alfred University	1	
4	Amherst College	ı	
5	Antioch College	1	
6	Barnard College	29	
7	Boston University	3	
8	Bryn Mawr College	3	
9	Clark University	3 1	
10	Colby University	ī	
ΙI	College of the City of New York	13	
Ι2	Columbia University	52	
13	Concordia College	ı	
14	Cornell University	8	
15	De Pauw University	I	
16	Dickinson College	I	
17	Elmira College	I	
18	Franklin Female College	I	
19	Hamilton College	I	
20	Hamline University	I	•
2 I	Harvard University	6	
22	Hellmuth College	I	
23	Hiram College	I	
24	Holyoke College	3	
25	Indiana University	I	
26	Lafayette College	3	
27	Lebanon Valley College	I	
28	Leland Stanford Junior University	3	
29	Lenoir College	I	
30	Limestone College	I	
31	Mt. Union College	4	
32	Nashville University	I	
33	New York Normal College	I	
34	New York University	4	
35	Northwestern University	I	
36	Oberlin College	I	
37	Ohio State University	I	

38	Ohio Wesleyan University	I	
39	Olivet College	1	
40	Oskaloosa College	I	
41	Pennsylvania State College	I	
42	Pennsylvania College for Women	I	
43	Pittsburg Female College	I	
44	Radcliffe College	I	
45	Rutgers College	3	
46	St. Francis Xavier College	3	
47	St. Lawrence University	I	
48	Smith College	4	
49	Swarthmore College	2	
50	Syracuse University	1	
51	Teachers College	17	
52	University of Chicago	2	
53	University of Georgia	I	
54	University of Iowa	I	
55	University of Kansas	1	
56	University of Michigan	4	
57	University of Minnesota	1	
58	University of Pennsylvania	2	
59	University of Rochester	I	
60	University of Vermont	2	
61	University of Virginia	I	
62	Vassar College	4	
63	Washington University	I	
64	Wellesley College	5	
65	Wesleyan University	2	
66	Woman's College of Baltimore	I	
		—	1898–99
		223	146
	Less number with degrees from two institutions	78	23
	NORMAL SCHOOLS	145	123
	Number of stu	dents,	1899-1900
Normal Schools	I Alabama	2	
Schools Repre-	2 Albany, N. Y	II	
sented	3 Bridgeport, Conn	I	
	5 Brockport, N. Y	ī	
	6 Buffalo, N. Y	2	

_	Control Crate D		
7 8	Central State, Pa	1	
	Chicago (Cook Co.), Ill	3	
9	Columbus, Ohio	I	
10	Cortland, N. Y	2	
ΙΙ	Edinboro, Pa	I	
I 2	Fredonia, N. Y	1	
13	Edinboro, Pa Fredonia, N. Y. Geneseo, N. Y.	4	
14	Georgia	I	
15	Illinois Normal University	1	
16	Indiana	1	
17	Indiana, Pa	1	
18	Iowa	1	
19	Mankato, Minn	I	
20	Mansfield. Pa	I	
2 I	Michigan (Ypsilanti)	4	
22	Newark, N. J	I	
23	New Orleans, La	I	
24	New Paltz, N. Y	3	
25	New York Normal College	22	
26	North Carolina	1	
27	Oneonta, N. Y	2	
28	Oswego, N. Y	9	
29	Paterson, N. J	2	
30	Philadelphia, Pa	1	
31	Potsdam, N. Y	1	
32	St. Cloud, Minn	I	
33	Salem, Mass	I	
34	San Francisco, Cal	1	
35	Toronto, Canada	2	
36	Trenton, N. J	1	
37	Virginia	1	
38	Washington, D. C	ī	
39	West Chester, Pa	ī	
40	Winona, Minn	ī	
-	City Training Schools	13	
		-3	1898-99
		108	
		100	54

The geographical distribution of students as shown in the following table includes 33 States and Territories and 6 foreign countries. Approximately 70 % of the Geographiregular students primarily registered in Teachers cal DisCollege reside outside of New York City, and tribution over 56 % outside of New York State. As compared with last year this is an increase of 11 % in the number of students from other States.

## GEOGRAPHICAL DISTRIBUTION OF STUDENTS

		899–1900 er of Students
ų.	Alabama	2
1 2	Arizona	7 T
	California	_
3	Colorado.	3
4		4
5 6	Connecticut	15
	Delaware	I 2
7 8		_
	Georgia	3
9	Illinois	5
10	Indiana	I
11	Iowa	1
12	Kansas	I
13	Kentucky	I
14	Maine	2
15	Maryland	2
16	Massachusetts	12
17	Michigan	7
18	Minnesota	5
19	Missouri	2
20	Nebraska	I ·
2 I	New Hampshire	I
22	New Jersey	57
23	New Mexico	I
24	New York (exclusive of New York City)	106
	New York City	177
25	North Carolina	2
26	North Dakota	1
27	Ohio	10
28	Pennsylvania	17
29	Rhode Island	I
30	South Carolina	I
31	Texas	I
32	Virginia	I
33	West Virginia	I
1	Armenia	I
2	Brazil	ī
	England	I
3	Germany	I
4	India	1
5 6		I
U	Turkey	
	m . 1	

The table of class registration \* lists the courses given in the College by the various instructors, the numbers of hours per week, and the total registration in each Class Regcourse. The following comparative summary indicates clearly that during the past two years the largest growth has been in the purely professional work, the most advanced courses showing the most remarkable gain:

COMPARATIVE SUMMARY OF CLASS REGISTRATION

Department	1897-98	1898-99	1899-1900
Education	92	533	666
Art	188	301	329
Biology	23	III	112
Domestic Art	52	41	66
Domestic Science	14	43	114
English	58	123	154
Geography	56	84	.70
German	0	0	6
Greek and Latin	0	17	22
History	71	129	141
Kindergarten	55	46	72
Manual Training	59	88	97
Mathematics	18	31	16
Music	52	62	70
Physical Science	70	78	71
Total	808	1687	2006

The scope of the College work and the extent of its influence are best indicated in the positions filled by its graduates. The table is incomplete and it gives no adequate idea of the applications that we have received for teachers. The demand for students who have received our training has far exceeded the supply, and in many instances we have been able to assist worthy students in other departments of the University. The coöperation of the University Appointment Committee, particularly the interest and counsel of the Chairman, has been of great assistance in these matters.

The following summary shows the character of work accepted by 115 of our students, and the geographical distribution of the positions:

<sup>\*</sup> The table of class registration here referred to will be found in the Appendix to this Report as published separately by Teachers College. A list of appointments accepted by Teachers College students during the year and a statement from the Treasurer of Teachers College are also included in the Appendix to the separate edition.

# SUMMARY OF APPOINTMENTS

Appoint- ments, 1899- 1900	Colleges and Universities: President Professors of Education	1 3	
	Normal Schools:		4
	Principal	1	
	Instructors	2	
	Principals of Practice School	5 8	
	Critic Teachers	0	16
	Secondary Schools:		10
	Superintendents of Public Schools High School Principals High School Teachers:	5 5	
	Biology		
	Geography 2		
	German		
	Greek and Latin 3		
	History 3 Mathematics 10		
	Physical Science 2		
	—	37	47
	Elementary Schools:		.,
	Principals	4	
	Domestic Art		
	Domestic Science 9		
	Fine Arts 8		•
	Manual Training 10	28	
	Class Teachers	14	
		_	46
	Kindergarten:		
	Principals	2	
	Training Teacher	I	
	Teachers	8	
	Other Positions:		11
	Hospital Economics	I	
	Private Tutor	2	
	Mission Work	ī	
	Supt. Orphan Asylum	1	
	Supe. Orphun Hayrum	_	5
	Less names counted twice		129 14
			TIE

#### GEOGRAPHICAL DISTRIBUTION OF POSITIONS

_	California	6	Distri-
I	California		bution
2	Connecticut	2	
3	Georgia	1	
4	Illinois	3	
5	Kentucky	I	
6	Maryland	I	
7	Massachusetts	4	
8	Michigan	2	
9	Minnesota	I	
10	Missouri	I	
II	Nebraska	2	
I 2	New Mexico	I	
13	New Jersey	2 I	
14	New York State	23	
	New York City	24	
15	North Carolina	1	
16	Ohio	2	
17	Oregon	I	
18	Pennsylvania	6	
19	Tennessee	1	
20	Virginia	3	
2 I	Washington	1	
22	West Virginia	I	
23	Wisconsin	3	
•	Brazil		
I		I	
2	Canada	_	
3	India	I	
		115	

#### EDUCATIONAL ADMINISTRATION

The history of Teachers College discloses a fact which has often been remarked in new undertakings, namely, that it costs time and effort to lay a substantial founda- Definition tion. In the attempt to develop a new profes- of Policy sional field, it was to be expected that there would be a

diversity of opinion concerning both the ends to be attained and the means to be employed. The meaning of Teachers College has been slowly apprehended by its friends, but in the events of the last three years it has been defined so clearly as to be unmistakable.

The avowed purpose of the College from the beginning has been the training of teachers; but what teachers, and what kind of training, have been debatable questions. The answer to both questions depended in part upon the quality and aims of students who presented themselves for training, in part upon the interests and abilities of the faculty employed to instruct them, and in part upon the equipment and facilities provided for the conduct of the work. It is to the lasting credit of the Trustees and other supporters of the College that means were soon provided beyond the immediate needs of either students or faculty. The task of the last three years has been to secure students who could profit from what the College has to give, and to build up a faculty able and willing to meet increased responsibilities.

The problem of securing the right kind of students was found to be directly related to the announcement of courses University of study, and with what success it has been Influence solved may be seen in the statistics cited above. In 1898 we had no graduate students, according to our present standards - not even a college graduate among those who were candidates for the diploma in secondary teaching. The large number of graduate students since enrolled is undoubtedly due in part to the greater range of studies provided for in the union with the University. The needs of advanced students have naturally made increased demands upon the University, notably in the departments of Psychology, Philosophy, English, and History. In this way and because of the academic status given, the union with the University has been of great value to Teachers College. has not only supplied us at nominal expense with a wide range of graduate courses, but it has promoted the efficiency of our own work by confining it more directly to professional lines. The arrangement, therefore, is mutually advantageous. The University secures a strong professional school without diverting funds from other departments, and Teachers College is enabled to offer its students far greater opportunities for graduate work than it could otherwise have economically provided.

It is apparent, however, that the recent growth of the College is largely due to the development of our own professional work. In 1898 the total class registration Growth of of the Department of Education was 92. In 1900 it had been increased to 666. Results have fully sional Courses justified the venture made in 1898 of announcing thirteen advanced courses in Education six months before it could be known whether a single student would be enrolled in them. In 1800 five new courses in Education were offered, and this year we have added six more. From the summary of class registration, given on p. 277, it will be seen that the Department of Education not only far outnumbers any other department in the College, but that the growth of most other departments is preëminently in those courses which are professional rather than academic. The opportunities in other departments have undoubtedly reënforced and supplemented the courses in Education. It is probable, also, that the stamp of approval which the University sets on these courses is a guarantee of efficiency which makes them doubly attractive. But when due weight is given to every extraneous influence the fact remains that when graduates of other institutions come to Teachers College they come primarily for that which is peculiarly professional.

The experience of the past three years has defined for us the field which is ours to occupy. It is now clear that Teachers College cannot be a normal school. It could not maintain that grade of instruction if it would; the expense of living in New York City alone, even if there were no other reasons, would prevent our competing successfully with State and municipal training-schools. On the other hand, it is certain there is an extraordinary demand for the advanced professional training of teachers. From the list of positions filled by our students during the past year (see pp. 278–279), t

is apparent that great opportunities await those who are prepared to become leaders in the profession. The colleges and universities of the country are beginning to concede a place in their curricula to the Science and Art of Education; normal schools, if they would avoid the dangers of the blind leading the blind, must have teachers beyond their own power to produce; public schools must have competent superintendents and principals, and good schools everywhere demand trained specialists to supervise and direct important educational interests.

The recognition that the function of Teachers College is the equipping of strong teachers for leadership in the profesFunction of sion has forced us to consider what training is of
Teachers most worth to the specialist and how best to give
College that training. During the past three years the
Faculty has been constantly engaged in modifying courses,
raising standards, and revising curricula. The end is not yet
in sight,—it probably never will be,—but each year makes us
more confident that we are moving in the right direction.

A survey of the field of Education discloses that there are four qualifications everywhere recognized in practice as essential to the success of the teacher. Presupposing a tions of the personality endowed with good-will, tact, and common sense, the teacher needs (1) general culture, (2) special knowledge, (3) professional knowledge, and (4) technical skill. The general culture must be liberal enough to inspire respect for knowledge, broad enough to justify independent judgment, and accurate enough to beget a love for the truth. The special scholarship must be sufficient for the work to be done; it should give that absolute command of the subjects of instruction which frees the teacher from slavish adherence to manuals and methods. The right professional knowledge should enable the teacher to view the subjects he teaches and the entire course of instruction in its relations to the child and to society of which the child is a part. The true educator must know the nature of mind; he must understand the process of learning, the formation of ideals, the development of will, and the growth of character.

artist in every vocation must have consummate skill in the use of his tools. The teacher must be skilled in the technique of his art; he must have the ability to impart his knowledge in a way that shall broaden his pupils' horizon, extend their interests, strengthen their characters, and inspire them to right living. And as every art is most efficient when intelligently directed, the art of teaching should be founded on the science of teaching, which takes account of the ends and means of education and the nature of the material to be taught.

It is the policy of Teachers College to afford every opportunity for specialization, but the faculty insists that the true basis of specialization in Education is in liberal culture, accurate scholarship, and the professional knowledge which characterizes the intelligent teacher.

The chief problem in the educational administration of Teachers College since it became a part of the University system has been to devise and conduct courses of study suited to the needs of advanced students. The first step was to provide graduate courses for students who were capable of undertaking research and investigation in some special field. The course leading to the Higher Diploma was planned for graduate students Higher whose interests were chiefly professional. It is Diploma intended to fit teachers of superior ability and of special academic attainments, for the work of training teachers in colleges and normal schools, and for positions in the public-school service requiring a high degree of professional insight and technical skill. Candidates for the Higher Diploma must be graduates of an approved institution of learning - a college, engineering school, a normal school, or the equivalent of one of these,—and must present satisfactory evidence of a high degree of professional ability as a result of the study of Education or experience in teaching. The real test of fitness, however, is the ability of the candidate to undertake research and investigation in one major and two minor subjects. The minimum period of residence is fixed at one year, but the necessity of completing some special task in line with the major subject and of putting the results in form for publication make it difficult for the average student to secure the Diploma in the minimum time.

College graduates, as a rule, are weak in professional knowledge; normal-school graduates, on the other hand, generally lack breadth of scholarship. Many students of both classes, therefore, need special preparation for the real work of the course. Some need further academic training. such as can be had in the University departments; others must have general courses in Education as a basis for research and investigation. Education 3, Applications of Psychology in Teaching, has been regarded as a distinctly undergraduate course, and up to the present time Education I, History of Education, and Education 2, Principles of Education, have been counted either as undergraduate or graduate work. Graduate students in these courses, it is true, have been required to do a certain amount of supplementary reading, but the results are not in all respects satisfactory. In my judgment, both of these courses should be considered only as undergraduate work, and as such should be required for admission to the course leading to the Higher Diploma. A step has already been taken in this direction in the regulation that Education I, 2, and 3 may hereafter be counted as a major in Education only on condition that the minimum requirements are satisfied from the list of advanced courses.

The course leading to the Secondary Diploma was planned for graduate students whose interests are chiefly academic. Secondary It is intended especially for teachers in secondary Diploma schools and instructors in colleges. Candidates must spend at least one year in residence and devote themselves exclusively to academic and professional study of the subjects which they intend to teach. This course of study is one to which Teachers College can point with pride. Despite the fact that in the popular mind any one of the above-named four qualifications suffices for eligibility to teach in the American high school, we have planned a course which requires as much in each respect as

is generally required in any one. For example, in the State of New York about 32 per cent. of the teachers in secondary schools have a college degree, approximately 39 per cent. are normal-school graduates, and the remainder, it is to be presumed, have been selected because of their special scholarship or success in teaching. Candidates for the Teachers College Diploma in secondary teaching must, first of all, be college graduates (at least when they complete the course); they must be able to demonstrate a high degree of special scholarship in every subject in which the Diploma is sought—at least the equivalent of three years of college work, three hours per week; they must pass satisfactory examinations in the History and Principles of Education, and in Psychology and its Applications in Teaching; and, finally, they are required to pursue courses specially designed to afford practice in the selection and arrangement of materials for instruction and in the actual teaching of the subjects which they elect.

The working out of this course has proved to be most difficult. The requirements for admission to the course have assured us of students strong in academic training. They are, however, in many cases, fresh from their college work, and have had no experience in teaching. It is necessary to give them both practical work in class instruction and the professional knowledge which will enable them to undertake the teaching of their subjects with prospect of success. This task has been found especially difficult in the case of Columbia and Barnard students who, under the regulations of the University, are permitted to begin professional work in their Senior year. Their interests are not primarily with us and too often their programs do not permit of systematic practice-work in the Schools. If the present regulations are to stand, students from other departments of the University must give more attention to the work of Teachers College.

The general character of the undergraduate courses has not been materially changed. The requirements for admission, however, have been steadily increased, and, with the elevation of standards has come an increasing number of experienced teachers who have had normal-school training. Elementary In 1898 we registered six normal-school graduand Kinder- ates; in 1900 the number was ninety-seven, representing over forty different institutions. garten Courses The presence of so many mature students in the upper classes has necessarily modified the character of the instruction and exerted a strong influence in shaping the future requirements of the course. In studying this problem the Faculty recognized that the chief source of supply of students for these courses must come from the rank and file of the public-school service and that our proper work begins where the normal schools leave off. It has been decided, therefore, for the future, to make graduation from an approved normal school the standard for admission to our undergraduate professional courses, or, in lieu of this training, to accept two years of a regular collegiate course, or its equivalent. This requires candidates for diplomas in undergraduate courses to spend four years in study or technical work in advance of the high-school course. It places every undergraduate course in Teachers College on the same plane as other undergraduate courses in the University. Such differences as exist are due to the special requirements of the work which the various courses are designed to perform.

The greatest change in the administration of the undergraduate work during the past year has been the readjust-Collegiate ment of the academic work formerly offered in Course the "introductory years," and the establishment in its place of a regular two-year Collegiate Course preparatory to the undergraduate professional courses. It was supposed for a time that candidates for the professional courses who were not normal-school graduates would secure the equivalent two years of academic study in some college. Experience shows, however, that students who take a regular college course invariably prefer teaching in secondary schools. The traditions of college life, and the training given in most colleges, predispose college graduates to pre-

fer the teaching of some special subject to the general work which is necessary in the kindergarten and elementary grades. School authorities agree, however, in the opinion that more teachers of collegiate training are needed in elementary work. The liberal culture, to which I have referred as an essential qualification of the teacher, is just as essential in teaching in the lower as in the higher grades. It is quite as important that children should be started aright as that they should be kept right. Hence the Faculty of Teachers College has deemed it a duty to establish a course with the special object of leading college students into kindergarten and elementary teaching. The requirements for admission to this course are of the same standard as the requirements for admission to the collegiate courses in Columbia College, Barnard College, and the Schools of Applied Science. The required subjects of the course are English, History, and Freehand Drawing. The remainder of the course is elective, conditioned by the subjects offered at entrance and by the restriction that in each year not more than six hours' work may be elected in any one department. In this way it is expected that students will find scope enough for individual preferences and yet secure the training in the subjects of most value to the elementary teacher.

There remains, I regret to say, one great hindrance to the complete success of the undertaking. Students who spend three years in Columbia College or Barnard College may enter a professional course in their Senior year, and at the end of four years of study secure the A.B. degree. Under the new regulations, students who complete the Collegiate Course in Teachers College, and then spend two years in a professional course, half of which is academic work, and practically all of which may be elected by Columbia or Barnard students towards the A.B. degree, receive no degree whatsoever. This is so obviously unfair to those students who prefer to direct their studies towards teaching in the lower grades that the University Council will undoubtedly recommend some plan for granting them a bachelor's degree. It is gratifying to report that the courses for teachers of

Art and Drawing, Domestic Art, Domestic Science, and Manual Training have been steadily advancing. The number of regular students in these courses has increased in two years from 16 to 77. Moreover, Courses in Domestic . there has been steady improvement in the quality Art, Domestic Science, of scholarship. Last year 24 per cent. of the students in these departments had had normal-school Fine Arts, and Manual or collegiate training. This is very gratifying in Training view of the difficulty usually experienced in technical courses in maintaining a satisfactory standard of scholastic attainments. These subjects are so technical in their nature, and the progress of the student depends so largely upon natural talents and special training, that it is impossible to insist upon the same degree of academic preparation as for the more general courses. In this case technical skill and special scholarship must outweigh other considerations. Hence in these courses the actual requirements in both academic and professional subjects are somewhat lightened to give more time for specialization along technical lines. Candidates for admission to these courses must give evidence of having completed a satisfactory course in an approved secondary school, and also of collegiate study or technical training or experience in teaching during a period of at least two years following the secondary-school course. It is the purpose of the Faculty to raise these standards as rapidly as conditions will permit. The College has stood from its inception for the good that lies in manual and industrial training, and it still holds to the fixed purpose of making these subjects truly serviceable in public education.

In pursuance of the policy of the College to be of service to the community, Extension Courses for teachers in the schools Extension of New York City have been given on afternoons Courses and Saturdays at the College, and at convenient hours in the Borough of Brooklyn in conjunction with the Brooklyn Institute of Arts and Sciences, and in Queens and Richmond under the auspices of the respective Borough Teachers' Associations. The attendance at such courses as were given was very satisfactory, but the number of courses

called for was considerably less than in the year 1898-99. This is accounted for, as I pointed out in my last report, by recent changes in the regulations governing the certification and promotion of teachers in the public-school system. While the attendance of extension students has fallen off during the year, the instructors of extension classes unanimously report that the quality of work done has greatly improved. It would undoubtedly be possible again to secure large classes of these students by offering more popular courses, but I believe it is better for all concerned to maintain the present standard even though the enrollment suffers. hundred teachers voluntarily pursuing regular College courses is a fact of more value to the city than a thousand studying under compulsion or being amused by popular lectures. I recommend, therefore, that so far as our facilities permit we continue to offer extension courses, and that these courses be conducted in the same manner and receive the same recognition as the regular College courses to which they correspond.

It is an open question whether teachers who are engaged in the exacting duties of the public-school service should engage in serious study during the year, but the Summer growing popularity of summer schools seems to Session indicate that the teachers themselves have no fears of devoting to study a part of the long vacation. The demand for summer instruction is increasing, and from all parts of the country the request comes to us for a regular session of College work. In my opinion we cannot long afford to neglect the opportunities for service that would come to us in making the entire resources of the College available during a summer term.

An argument for the extension of our work beyond the field of public-school instruction is found in the demands made upon us by other forms of educational Other effort. There is need of trained teachers and Education-competent leaders in private schools, trade schools, industrial schools, Sunday schools, reform schools, houses of refuge, and other philanthropic institutions. The

list of positions recently filled by our students (see pp. 278–279) indicates that Teachers College is giving assistance to missionary work in India and South America, to orphan asylums and reformatories in New York, to negro education in the south, to the education of Indians in the west, and to charitable work all over the country. We have students in College who are fitting themselves specially for the training of idiotic and feeble-minded children, and for missionary work at home and abroad. This spirit of devotion to the cause of education, wherever there may be need of professional service, is to be commended and encouraged.

The need for professional training for teaching outside the public-school is well illustrated by the request that lately Training came to us from the American Society of Superintendents of Training Schools for Nurses. There is ample provision, it was said, for the training of nurses. Each hospital of any importance maintains a school to supply vacancies in its own staff. Students are trained not only as apprentices in the wards, but they have a regular course of instruction during a period of two or three years in the subjects most directly related to their practical work. The instruction in these training schools, aside from occasional lectures by attending physicians, is mainly given by the head of the school, who is generally the superintendent of the hospital as well. Her qualifications for the work are not primarily those of the teacher. She is a trained nurse who during an experience of ten or fifteen years has showed sufficient executive ability to warrant her in assuming the management of a hospital. She has not only had no opportunity to teach, but she comes to her position as head of the school after a separation of several years from her own experience as student. The results of such a system cannot be entirely satisfactory, and no improvement is likely to come until the superintendents are also trained teachers.

In 1899, after a careful consideration of the request of the Society, it was agreed to make the experiment of Hospital admitting trained nurses to certain courses of in-Economics struction in Teachers College under the super-

vision of the Department of Domestic Science. students were admitted and remained in residence during the past academic year. A Committee of the American Society intelligently followed the progress of these students, and at the last annual meeting held in New York City in April they reported that it was highly desirable to continue the work. Accordingly an appropriation was made from the funds of the Society to aid us in maintaining two courses in Hospital Economics. These courses have been designated Hospital Economics I-Methods and Practice in Teaching, and Hospital Economics 2-Hospital and Training-School Organization and Supervision. It is expected that the former course will centre around the instruction of a class from the Training School of St. Luke's Hospital. Course 2 will consist largely of lectures by eminent specialists in the subject. We have already issued a syllabus of these lectures as follows: (1) Hospital Construction, by Miss Eva Allerton, Rochester Homœopathic Hospital, Rochester, New York; (2) History of Hospitals, by Miss M. A. Nutting, Johns Hopkins Hospital, Baltimore, Md.; (3) Hospital Administration, by Miss Maud Banfield, Polyclinic Hospital, Philadelphia; (4) Training-School Administration, by Mrs. Hunter Robb, Cleveland, Ohio; (5) Training-School Administration (continued), by Miss Lucy Walker, Pennsylvania Hospital, Philadelphia, Pa. The general supervision of this course will be in the hands of Miss Anna L. Alline, who will supplement the work of the special lecturers and conduct such excursions and field-work as may be found necessary in the successful pursuit of the course. Thus it is proposed during the year to make careful studies of the following subjects: Laboratories: preparation of culture media; isolation and culture of bacteria; preparation of anti-toxines. Milk laboratories: modified milk: sterilized milk: Pastcurized milk. Dairies: source of bacteria in milk; effect of bacteria on milk. General hospitals. Private hospitals. Special hospitals. Training schools. Small general hospitals. Insane asylums. Dietary on scientific basis in an insane asylum. Operating theatre:

sterilizing plant; preparation for operation; detail work of clinic. Philanthropic organizations: relations to the nursing profession.

The action of the American Society was not definitely communicated to us until after Commencement, so that it has again become necessary to carry the course under the authority granted to the Dean for the admission of special students. I recommend, however, that the Trustees accept the contribution of the American Society and that the Faculty be authorized to make provision for conducting the course in regular manner.

The scope of work in the various departments last year is fairly indicated in the table of class registration (see New App. 297). Few new courses have been added, but pointments old courses have been greatly strengthened and in some instances radically changed to meet the needs of a new class of students.

A welcome addition to the teaching force has been the appointment of a Professor of School Administration. This School Ad- position has been ably filled for three years by a ministra- non-resident lecturer, but the presence of a regution lar professor distinguished for his success in school supervision and management cannot fail to reinforce the professional work of every department in the College. Professor Dutton will have a unique opportunity as Superintendent of the Teachers College Schools to demonstrate in practice the theories which he considers best in the administration of schools.

The Department of Latin and Greek has also received a full professorship within the year. This step has been Latin and necessitated by the relatively large number of Greek graduate students who have come to us during the past two years for professional work which the University departments have been unable to meet. Last year 22 students registered in Latin and Greek, and the year before 17; these members are in excess of the total enrollment of graduate students in the corresponding courses in Biology,

Geography, and Physical Science. It seems, therefore, that the College is justified in adding to its Faculty a professor of the ancient languages. It is gratifying, too, that the fortunes of the new department have fallen into the hands of a man so capable in scholarship and so successful in teaching as Professor Lodge.

The importance of Music in the school curriculum has not been lost sight of in the general reorganization of the College work. The appointment of Mr. Charles
H. Farnsworth places in charge of this work a man of fine artistic sense and exceptional skill in the conduct of classes ranging from the kindergarten to the university. His opportunity is second to none in the College, and the responsibility is correspondingly great, but his success in similar positions elsewhere promises that he will not be found wanting here.

The Library has sustained an irreparable loss in the death of Mrs. Peter M. Bryson. From its foundation, in 1887, to the present year, Mrs. Bryson devoted herself unreservedly to the upbuilding of this department of the College, and the present character of the collection is largely due to her personal devotion and solicitous care. The generous gifts made during her lifetime will enable us to continue the work that she so nobly begun, and to make the Bryson Library a worthy memorial of its founder.

Following is a summary of the librarian's report for the year:

The Library contains at present 14,240 bound volumes. The growth during the past year has been greater than in any previous year, as is shown by the accessions of the past three years: 1897–98—1139; 1898—Report 348; 1899–1900—2292. Of the volumes added during the past year, 1212 were given and 1080 bought. These statistics do not include the volumes that have been loaned by the Columbia University and which are now permanently located in this Library.

In accordance with the agreement made last year in regard to the future policy of the two libraries relative to the special work to be carried on in each institution, a transfer of books

has been made from time to time by which the Bryson Library has been enriched, especially in the line of educational periodicals. At the beginning of the year an effort was made to fill out, as completely as possible, the numerous sets of educational periodicals, American, English, French, and German, that were either in the University or Bryson Library, and to purchase in addition certain complete files of American educational periodicals. Care was taken to avoid purchasing duplicates of volumes already in either library and the sets in both libraries were brought together, duplicates thrown out, and the one complete set deposited in the Bryson Library, which, in the future, will have entire charge of the purchasing and binding of these periodicals. The advantage of this arrangement is evident. Instead of broken sets partly duplicated in both libraries, one set completed as far as possible is to be found in this Library. The same policy is to be carried out in regard to other classes of educational literature—viz., State and municipal reports of superintendents and boards of education.

The Avery Collection has been increased by gifts of books made by Mr. and Mrs. Avery. The collection of text-books which was started about a year ago has been increased from time to time and now numbers about twelve hundred volumes. It is intended to make this collection as large and complete as the shelving capacity of the Library will permit, as it will doubtless prove a valuable source of information in the comparative study of methods. With the exception of a few old books bought at auction, the material for this collection has been given to the Library. Those who have contributed the largest number of these school books are Supt. A. P. Marble, who gave about seven hundred, Dr. Nicholas Murray Butler, the Springfield City

Library, and the Brooklyn Polytechnic Institute.

The number of current periodicals received by the Library is 165. Of these 98 are educational, 23 scientific, 12 on fine

arts, 11 bibliographical and literary, and 21 general.

The use of the Library shows an increase over any previous year. The circulation of books for home use during the past three years is as follows: 1897–98—9388; 1898–99—11,623; 1899–1900—13,181. The largest daily loan was 130. These statistics do not represent the use of books in the Library.

The number of readers who have drawn books for the past three years is as follows: 1897-98-683; 1898-99-892; 1899-1900-966. No record is kept of readers using

the Library for reference only. The number of new cards added to the catalogue was 3000, while 2355 old cards were

corrected and replaced.

The work of collecting and preserving the annual reports, catalogues, circulars, and other publications of certain schools and academies in this country has been systematized during the year. A list of representative normal schools and secondary schools, both public and private, has been carefully selected, and it is intended to send for the publications of these schools regularly and to keep them on file and available for use. This collection will supplement the collection of reports, both State and municipal, on education.

I referred in my last annual report to the establishment of an Educational Museum, and discussed at some length the purpose of such a collection and the use to Educational which it could be put in Teachers College. I wish in this report to reiterate and emphasize the ideas presented last year. The services rendered by the Curator during the year and the beginning already made in securing valuable illustrative material confirm my judgment that the Museum can be made one of the most valuable adjuncts of the College equipment. We now have fine collection of casts, photographs, and lanternslides which are being catalogued and made readily accessible to all departments. A good beginning has been made, too, in securing photographs, plans, and specifications of typical school buildings for the use of students in Educational Administration and School Hygiene. The course in the History of Education has been enriched by some valuable material illustrative of early school apparatus, textbooks, and teachers' helps. The departments of Domestic Art and Science have received acquisitions by way of textiles and food products which will be of service not only to College students but also to the children in the Horace Mann School. Among the gifts made to the Museum during the year I may mention an elaborate model of the Taj Mahal presented by Mr. Francis O. Mathiessen, and a set of carved figures in wood illustrative of various phases of social life in China presented by Mr. William Barclay Parsons. In view of recent events in the far East these objects have a peculiar interest both to teachers and pupils. In a small way they indicate the possibilities of a large collection.

The success already attained in this field warrants us in asking further support for the future. We need materials for practical demonstration of the subjects taught in School and College, but we also need materials of value in the history of education, in the organization and administration of school systems, and in the theory and practice of teaching at home and abroad. We could exhibit to advantage, as I stated a year ago, the essential features of special devices in the heating, lighting, ventilation, sanitation, and equipment of school buildings. We should have larger collections than we now have in the various fields of science: not that we need a complete natural-history museum, but here as in other fields we should have carefully selected objects that will fairly illustrate types or general ideas of service in school work. Such a museum need not be, in my opinion, either immoderately large or unduly expensive. But if it were both large and expensive it would soon pay for itself in service to us and to the educational public. We have had calls within the year from Russia, Germany, England, and many parts of our own country for information and assistance that only such a department could give. Such a museum might easily be made a national, almost an international clearing-house of concrete educational ideas.

The Horace Mann School has enjoyed a year of exceptional prosperity. The excellent reputation which the Horace School bears in the community has sufficed to Mann keep all grades up to the full measure of their School capacity. Indeed, we now have a waiting list from which it is possible to make a selection of the best candidates for admission. Such prosperity, however, has its accompanying ills. The chief difficulty which we have encountered is to make a selection which shall really be best for our purpose. It were easy to select the candidates who could pass the best examinations, and still easier

to take applicants in the order of their application. But it is apparent that either plan may be unsatisfactory where intellectual ability is not the only qualification to be desired. The Horace Mann School, unlike the public school, is under no obligation to take all who apply, and it differs from most private schools in that it should be fairly representative of all classes of the community. In our efforts Its Aims to build up a "model" school we must have and "model" teachers and "model" pupils. Scrupu-Problems lous care is observed in the selection of teachers, and we do not hesitate to make a change in the staff when the interests of the School demand it, Not all teachers who succeed admirably in public-school work can become successful critic-teachers; likewise not all pupils who do well in public or private schools are to be desired in our classes. is that the Horace Mann School is designed to serve a dual purpose: (1) the education of its pupils in the best possible manner; (2) the professional training of College students through observation and demonstration of superior class teaching and school management. The School is maintained primarily for the latter purpose, but the complete realization of the aim requires that the work of the School shall be in all respects worthy of imitation. It is precisely this condition of affairs that makes the selection of new pupils and new teachers so difficult a task. It forces into prominence certain qualifications which not all applicants can be expected to present. The rejection of teachers and pupils who may be worthy is a very serious matter. has made trouble in the past, and similar troubles are likely to arise in the future, but I can see no way to obviate such difficulties except through the tact and honesty in judgment which inspire confidence. Perhaps the surest guarantee of right action is in the support which has been given the Principals of the Schools in the appointment of a Superintendent. The combined judgment of Superintendent and Principals ought to be a safer guide than the individual opinion of any one.

The Horace Mann School, in so far as it is a school of

demonstration, is vitally related to the College. We expect to find reflected in the School the best thought of the College, and we are inclined to judge of the efficiency of departmental theories by their reto the alization in the School. It is right, therefore, College that the various instructors in charge of College subjects should have a voice in the direction of the corresponding work in the lower grades. The School on the other hand, as I have before pointed out, does not exist solely for the sake of College students or College professors. There are pupils to be considered individually and there are the unity and solidarity of the School as a whole which cannot be neglected. The harmonizing of these conflicting interests has been the most difficult task in the administration of the Horace Mann School.

Until recently the School has been considered the working laboratory of the College. It has been the duty, therefore, of the various heads of departments in the College to direct the instruction of their respective subjects in the School. The Principal of the School was an executive officer appointed to run the machinery set up for him by his colleagues. The College Faculty made the course of study, prescribed the rules and regulations for its administration, appointed the Principal and teachers, defined their duties, and supervised their work. Within his own field each College professor was master; he acknowledged no authority except the Faculty. This kind of management made a most efficient practice school. Professors were quite free to conduct experiments and develop methods of instruction according to their individual bent. The results were naturally very satisfactory in many subjects, and it was to the credit of the Faculty that the School was developed on broad and liberal lines. It was inevitable, however, that defects should be found in so democratic a government.

The problem as it finally presented itself to the Faculty was how best to secure effective centralization and unity of School interests without depriving the College of a field for experimentation and demonstration. During the past two

years the problem has been ever before us and it is my pleasure to record that without exception the members of the Faculty have honestly and unselfishly devoted themselves to its solution. Any change obviously meant loss of authority and the surrender of vested rights on the part of the College departments. Nevertheless radical changes have been made and embodied in Statutes upon the unanimous recommendation of the Faculty.

The plan adopted for the administration of the Horace Mann School is the direct opposite of the old order. interests of the School as a whole have been Plan of placed before the services that the School can Adminisrender to any department. A Principal has been tration appointed for each division-kindergarten, elementary, and high school -whose duty is to direct the instruction and management of the grades under his care. The Principals in turn are under the direction of a Superintendent who is responsible only to the Dean of the College. The heads of departments in the College are supervisors of their respective subjects in the Schools; their duties are advisory. propose courses of instruction, suggest methods of teaching, and nominate special teachers; but the Superintendent and Principals have full power to formulate courses of study, select teachers, define their duties, and make regulations for the conduct of the Schools. The Faculty recognizes that this system is liable to abuse, and that in the hands of autocratic executive officers the School might fail altogether of its primary purpose as an exponent of College thought and ideals. The check on mismanagement is the right of appeal to the Dean, who is authorized to hear and determine all cases of dispute between departments. A hearing is thereby assured on every measure which may seem to infringe on the rights or oppose the interests of any officer of the College.

The present arrangement may not be perfect, but it insures harmony and the coöperation of the entire teaching staff in School and College. It places all departments on an equal footing and gives to each the right to supervise its own work. It makes possible the building up of a great

school - a school in which the subjects of the curriculum shall be regarded not as an end, but as a means towards the development of the highest character in the lives of its pupils. We believe that what the departments have lost has been more than counterbalanced by the gains of the School as a whole. There may not now be the same freedom of initiative as formerly; it may be more difficult to carry out certain very desirable experiments in teaching to their logical conclusion; in fact, the School must be regarded hereafter as a school of demonstration in which College students may observe how theory is reduced to practice. Nevertheless, if the plan be honestly executed there can be no great loss to any department, for any idea that cannot be successfully demonstrated under the favorable conditions of such a School may reasonably be accounted impracticable in any event. There is scope enough for creative work within these limits, and, favored as it is, the Horace Mann School should speedily become a model of its kind.

The reorganization of the Horace Mann School has made imperative an Experimental School in which new educational theories can be thoroughly tested. This Experifact was set forth two years ago in my annual mental report, and again, last year, I emphasized the School importance of such a department in the practical work of the College. The Experimental School, organized last fall with forty children in the kindergarten, nineteen in the first grade, and several classes in Domestic Art and Domestic Science, is a step in the right direction. The School must be considerably expanded, however, before it can serve the College as it should. We need at least four primary grades to give a comprehensive view of the problems of elementary education, and as soon as possible provision must be made for a complete elementary school of eight classes. With such a school the College could guarantee to inexperienced teachers sufficient class instruction to qualify them for practical work in the Horace Mann School. Such a school, too, would be invaluable to advanced students in affording them the opportunity to study children, to test methods of teaching, devise

courses of study, and to investigate problems in school supervision and management. This work, I am pleased to say, has already been inaugurated, and so far as our facilities permit will be prosecuted vigorously during the ensuing year.

Education, as a subject of research and investigation, is still in its infancy. There is no department of the College or of the Schools that does not have a rich field to cultivate. It is not only our duty to add to Publicathe amount of professional knowledge, but we owe it to ourselves and to all students of Education to make that knowledge available in some permanent form. Our instructors must be progressive teachers; they must also be scholars and keen investigators. The publication of the results of their investigations cannot fail to stimulate further research and to redound to the credit of the institution. The College will profit, too, from the publicity that obtains in a frank statement of its attainments and from the criticism that such a statement will inevitably evoke. Both the desire to excel and the effort to avert censure are motives that make for progress.

The establishment of the *Teachers College Record* within the year is a significant feature of the educational administration of the College. The purpose of the series is to give the Faculty and students of the College a College comprehensive view of the actual workings of the Record Schools of observation and practice, to provide graduates of the College with a means of prolonging their professional studies, and to acquaint the public generally with the theory and practice of teaching adopted in Teachers College. To the extent that Teachers College is a typical professional school, this journal will be devoted to the practical problems involved in the professional training of teachers.

Each number of the *Record* will treat of a specific problem in the work of the kindergarten, elementary school, high school, or some department of the College. The topics for presentation will be selected from the following list: The history, organization, and Journal administration of Teachers College; the management of the

schools of observation and practice; the selection and arrangement of materials for the curriculum; outlines of courses of study in the various subjects; the aims, methods, and results of instruction in the various school grades; syllabi of collegiate courses, and such studies in the history and philosophy of education, school economy, and the theory and practice of teaching as serve to explain the course of instruction and the methods pursued in the College and its Schools. The plan is to exhibit the ideals and methods, the merits and defects, of one institution in the honest effort directly to promote its own best interests and indirectly to be of service to all others engaged in a similar task.

The Record is published bi-monthly, except July, by the University Press. The subscription price is \$1.00 a year. The following numbers have been issued:

No. 1.—January, 1900.

The Function of the University in the Training of Teachers.

James E. Russell

Numbers Historical Sketch of Teachers College from its Founda-Already tion to 1897. Walter L. Hervey. Issued

> The Organization and Administration of Teachers College. James E. Russell.

No. 2.—March, 1900.

Aims of Nature Study. Francis E. Lloyd.

Outline of Course in Nature Study, with Chapters on the Sources and Preparation of Materials, Bibliography, etc. Elizabeth Carss.

No. 3.—May, 1900.

Outline of Course in English in Horace Mann School. Franklin T. Baker.

The Teaching of English Composition and Outlines of Required Readings. Herbert V. Abbott, Ellen Y. Stevens, and Emily V. Brinckerhoff.

It is safe to say, I think, that the success of the journal is assured; already a sufficient number of paid subscribers have been enrolled to secure its admission to the mails as second-class matter. Orders have also been received in bulk for the supply of the entire corps of several city school systems. Moreover, we have been requested by two superintendents to permit the incorporation of the Nature Study course, as it stands, in their curricula. Thus the *Record* is of use to others; its value to us in stimulating thought, in ordering and systematizing departmental work, and in encouraging investigation, can scarcely be overestimated.

The training of teachers raises many questions other than those relating to class instruction and school management. Just as the teacher's influence is not confined to the school room, so the training of teachers should be more than preparation for school-room work. The teacher teaches as surely, and often more effectively, by his example outside of school as by precept in his class. Moreover, the daily contact of pupil with pupil is educative in the highest degree; the good teacher always strives Example to order the life of his pupils in a way to reinforce and supplement the formal instruction. Success in this is largely determined by native tact and temperament, but the means to be employed are matters of information and experience. No experience in dealing with student affairs is more vivid or influential than the remembrance of one's own student life. The teacher draws constantly on his memory to supply premises necessary in judging what he daily finds in the conduct of his pupils. Hence the obligation resting on all training schools for teachers to study the supervision and direction of student affairs.

The student life of Teachers College has always been pure and healthy, as might be inferred from the nature of its aims. Students have been encouraged to participate in various forms of charitable and religious Life work. The chapel exercises have never been better attended than during the past year; the average daily attendance has been nearly one half of the entire student body. The social gatherings at the College and in the homes of various professors have also served to stimu-

late a good College spirit. These features of our work I have considered of so much importance that I have recommended to the Trustees the appointment of an officer whose duty it shall be to advise and assist students as occasion may offer. Miss Lucetta Daniell, formerly Registrar, has been assigned to this position with the title of Directress. She will keep lists of approved boarding-houses, aid students in finding suitable homes, see that they are properly cared for in sickness, and advise with them in matters of a personal or social nature. Such an office is desirable anywhere, but in New York City, where students find it difficult to secure good homes and agreeable surroundings, I believe it is indispensable in the administration of an educational institution.

It is well known that college students do not favor official direction of student affairs. It is well that they do not; for that college life is best, other things being equal, in which the largest number voluntarily partici-Governpate. The problem of discipline is best solved ment when students find helpful and stimulating occupation. has been our policy in student government to encourage the formation of clubs and societies which should enlist the support of students interested in a common cause. We have, therefore, a Glee Club, an Art Students' Club, a Graduate Club, and several others with equally specific aims. With the growth of these organizations has arisen the question of how best to unify and direct them. It was suggested to the students that the various clubs might be federated, and that through a central committee each could keep in touch with the others and thus avoid a duplication of work. It was pointed out, too, that such an arrangement would afford the opportunity both to the College and to the students of doing something worth doing. The outcome is shown in the following extract from a report submitted in May by the Executive Committee of the Teachers College Students' Federation:

<sup>&</sup>quot;The rapid growth of Teachers College during the last

two years has introduced into its administration many new problems, not the least of which affect the relations of the students themselves. With a small number of students a unity of spirit on a social or an educa-of Students' tional basis was maintained with comparative Clubs in ease. The union with Columbia University and Barnard College, however, by bringing to us the pedagogical students of those institutions, and, moreover, the establishment of the Graduate Department, by introducing students whose aims were primarily personal—that is, centred on particular investigation—readily tended toward disparity of interests, which it became the desire of the then existing Students' Club to harmonize.

"The Students' Club was itself the successor of a purely social club. Beyond the social function it extended its bounds to comprehend some few problems of student government, and coöperated with the administrative officers of the College in dealing with problems of student interests. In spirit its membership was all inclusive; though in reality it failed to reach the graduate students, and, furthermore, it did not correlate the work of the several departmental clubs.

"Toward the close of the last academic year, therefore, the Club began to canvass the means by which the fullest service of the organization could be realized. With the coöperation of the Dean and the other College officers, shortly after the opening of the present school year, some plans for a comprehensive organization were formulated, which led to the institution, in February, of the Students' Federation.

"The present purposes of this Federation are definite, being mainly threefold, as follows: It aims to unite on some common basis, which must be both social and Report of educational, all the students who attend lectures Executive and classes at the Teachers College; it means to Committee bring into more intimate and correlative relationship the several clubs and student groups of the College; and, finally, it is to assume control of matters of student government, to serve as a medium between the College officers on the one hand and the students and clubs on the other, and to coöperate with either in any matters that may be of mutual interest.

"The Executive Committee feels that there is still urgent need in the College for greater coöperation among the students. It is hoped that the Federation, in uniting the clubs on a common ground, will be effective in furthering this end. This movement, tending to make the interests of one department the interests of all, should do much toward establishing an acquaintanceship among students, thus obliterating departmental lines, and promoting a true College

allegiance rather than departmental interests.

"It has seemed to the Committee, however, that something more is needed in order that the various departments may be more closely united. In so large an institution where interests are so diversified, the difficulty of keeping in touch with the life of the whole is manifest. evidently a need for the establishment of some means whereby a closer union may be effected. In response to this demand the Executive Committee would suggest that a College Bulletin be issued by the Federation at stated intervals, each class and each department contributing such items as may be of general interest to the College. Such a medium would also furnish an opportunity for laying projected plans before each student, thus insuring to each individual a knowledge of matters of general interest. It is further recommended that this issue be simply a bulletin of College news, not a College paper in the usual interpretation of the term. The Executive Committee hopes to be able to publish in the near future a sheet of this nature, which will record further actions and recommendations."

I may add that the first number of the *Students' Bulletin* appeared in June, and that arrangements have been made for its publication during the ensuing year.

#### BUSINESS ADMINISTRATION

The recent growth of the College has raised some very important problems of business administration. Increase The Prob- in number of students means either larger classes lems or more instructors. Either alternative presents serious difficulties.

We aim not only to give professional knowledge but also to apply that knowledge in a practical way. The technical skill involved in planning and teaching a series of lessons is developed only by actual experience in the laboratory or class-room. There is constant need of guidance and expert Size of criticism. The student must have the personal Classes attention of his instructors. Any other course would be positively reprehensible. No more pedantic plan

could be devised, and nothing more fatal to the spirit of our work, than to teach our students in mass. Our undergraduate classes, with few exceptions, must be kept small—small enough to meet the needs of each individual. Moreover, the needs of our graduate students still further emphasize the desirability of small classes. They are engaged in special research and investigation; each one is working on a specific problem and thus forms practically a class by himself.

It is apparent, therefore, that our only resource has been to increase the number of our instructors. Furthermore, the raising of standards and the entrance of Number of advanced students have obliged us to appoint Instructors only the best instructors who could be secured. It gives me pleasure to say that in filling each vacancy the Trustees have authorized me to find the best man for it and that no recommendation I have made has been disregarded because of the expense involved.

This policy has greatly increased the current expenses of the College. In 1898 we added to the College Faculty 2 professors and 3 instructors; in 1899, 1 professor and 5 instructors; and this year, 2 professors Expenses and 3 instructors. More teachers have been required each year in the Horace Mann School, and the growth of both School and College has necessarily increased the staff of administrative officers. On account of new instructors and the expense of maintaining their courses, the average increase in current expenses during the past three years has amounted to about \$20,000 annually. Under normal conditions, an instructor is necessary in our work for every 20 students. This means, as I pointed out in my last annual report, that we must expend \$4000 to \$5000 in instruction and incidental expenses for every \$2000 we receive in students' fees. This fact, coupled with the annual increase in teachers' salaries, as provided in the salary schedule, indicates that during the next few years provision must be made for an annual addition to the budget of about \$15,000. The alternative is to check the development of our work and to limit the admission of students to the present capacity of the College. But I earnestly hope that such action Need of may not become imperative. The College has Endownever been so near the realization of its ideals ment as it is to-day. It were to some extent a misuse of our magnificent plant and a shirking of moral responsibility to permit the lack of endowment to check the growth of the institution and thus impair its usefulness.

The following table presents a general survey of the situation. No account is taken of the enrollment of extension students; the fees from extension classes more than pay the cost of instruction. The difference between the total expenditures and the amount of income mentioned represents the receipts from College Hall, the income of special funds, and other earnings of the College. The variable items are as follows:

### COMPARATIVE SUMMARY OF EXPENSES, ETC.

,	1897-98	1898-9	1898-99		1899–1900		
Receipts from tuition fees: College School	\$7,671 49,025 63,570 169,964	\$19,116 62,272 62,500 193,175	In- crease 149 % 27 % 2 % 13 %	\$22,171 72,077 72,520 212,278	In- crease 16 % 16 % 15 % 10 %		
Number of College Students: Regular	97 169	213 (196 %) 122 ( 26 %) 335 534	99 % 35 %	347 ( 63 %) 107 ( -1 %) 	36 %		

The most significant feature in the above statement is that, contrary to the general law, the income from earnings has kept Relation of almost even pace with the increase in expenditures. Expenses In 1898-99 an increase of 13 per cent. in current to Income expenses was offset by a gain of 149 per cent. in College fees and of 27 per cent. in School fees. Moreover, the

earnings of the College in other directions were unusually large, so that instead of requiring \$10,000 additional in gifts for current expenses, as was estimated, In 1808-00 we actually needed \$1000 less than in the previous year. These facts show conclusively that the attendance in 1897-98 was considerably below the capacity of the College. On no other basis can I account for a gain of \$22,602 in students' fees as a result of an outlay of \$23,211. As a business venture it was a decided success; from the educational standpoint it increased the enrollment of regular students by 196 per cent. The figures for 1899-1900, on the other hand, indicate that the College is approaching its maximum limit of attendance on the basis of its present equipment and teaching staff. Here an outlay of \$19,103 returns in students' fees only the sum of \$13,976. This tendency toward diminishing returns, as I have shown above, must be expected so long as the College continues to grow, and points to the necessity of endowments. Some departments have already reached their limit and others will soon arrive at that point. When that day comes we must count on spending for each new student at least twice as much as he can afford to pay in return.

The amount of fees that students can afford to pay for tuition is determined principally by the prevailing rates in other institutions, and by the returns which may Students' be expected in later life. It is well known that Fees the teaching profession is poorly paid. In the State of New York the average salary paid to teachers in high schools is \$615, and to principals of schools \$980.\* The highest salary paid to principals and superintendents of schools in this country rarely exceeds \$5000. Our graduates, owing to their superior training, may expect \$600 to \$1500 Relation to for women, and \$1000 to \$3000 for men. In Teachers' only one instance during the past year, I think, Salaries has a Teachers College student received an appointment worth \$5000. Such instances are rare exceptions and occur

<sup>\*</sup>Report of Director, High School Department, University State of New York, 1899.

only in case of positions which demand executive ability. And even then the remuneration is far less than would be paid to men of equal ability in business or in the legal and medical professions. The attractiveness of a teacher's position consists only in part in the salary received; the true educator finds equal satisfaction in the service that he can render.

The other factor, as I have said, is the prevailing rates in other institutions. Professional schools of law and medicine Prevailing can hardly be counted in the same category, because the teaching profession can offer no such Elsewhere financial inducements as are held out to successful lawyers and physicians. Our guides must be the normal schools, colleges, and universities. The first of these is generally a State or municipal institution which grants absolutely free tuition, and in many of them books and materials are supplied to students free of cost. The State universities, too, from which we draw so many students, make no charge for tuition. In fact the only institutions that send us students accustomed to pay fees are the denominational colleges and other eastern universities. And in these the average rate of tuition probably does not exceed \$50 per annum. On the other hand, the universities which maintain departments of Education are our closest competitors and the majority of them are entirely free.

The fact that Teachers College, despite its fees, enrolled last year nearly five times as many regular students as it did Fees in three years ago is a very gratifying indication of Teachers the value popularly attached to our work. More-College over, the rate of fees has been twice advanced during this period. In 1897–98 tuition was uniformly \$75 per annum. The next year graduates paid \$150 and Seniors in undergraduate courses \$100. Hereafter all undergraduates will be required to pay \$100 per annum. These rates, in my opinion, cannot further be advanced without endangering the quality of our students. Even as it is, many of our best students must have assistance in order to complete their College course. Thus the fellowships and scholarships come

as a great boon to many worthy students. They are granted for merit, and students lose no self-respect in accepting the awards. The loan funds have also proved Fellowships, to be of the greatest service. During the past Scholar-four years we have assisted 57 students by loans to the amount of \$7002.50. In every case there has been genuine need. The donors may be assured that their gifts are wisely used and that there is heartfelt gratitude for the assistance which allays so much anxiety and suffering.

The situation in the Horace Mann School with respect to fees is less perplexing than in the College. The patrons of the School are able to pay for the instruction of their children, and the better the instruction is Horace the more willingly will they bear the expense. Mann We know that the School is thoroughly good and School in my judgment the tuition fees should be fixed at such rates as will support the institution. Up to the present time this has not been the case, notwithstanding the increase in income within three years from \$49,025 to \$72,077. estimate for the ensuing year, in which I have attempted to separate the budgets of the College and the School, indicates that the current expenses of the School may be expected to exceed the income by approximately \$10,000. On the same basis, the deficit three years ago was about \$20,000. not a creditable showing from the standpoint of the College, but it gives to the patrons of the School no cause for complaint. The best of everything has entered into its equipment, and no expense has been spared in its maintenance. These advantages will still further be enhanced when the new school building is ready for occupancy, and, furthermore, the increase in attendance will shift the balance from the debit to the credit side of the sheet.

In my report on the educational administration of the College I have called attention to certain features of our work which must be supported if our progress Needs of is not to be checked, particularly the Experithe College mental School and the Educational Museum. Friends of the College must realize how great is our need of these

departments and how serviceable they can be made. The Experimental School, if properly housed and equipped, would not only provide the College with a working laboratory in class-room instruction, but it would give to the neighborhood a College settlement in which in-Experitending public-school teachers could receive pracmental tical training in all forms of social service. School Alumni Association, quick to appreciate the opportunities already offered, have begun the collection of a library which is now in active circulation. The classes in domestic economy, conducted by our College departments, have been overflowing all the year, and many applicants have been denied admission. We ought to develop this work for the girls and to introduce some kind of manual and industrial training for boys. The interests of the College include all these fields, and it is wise and prudent to use every means of cultivating them. Such a school as the situation demands—to include eight class-rooms, a lecture-hall, workrooms for sewing, cooking, and manual training, a library, gymnasium, and bathswould probably cost \$200,000 for building and equipment, and \$15,000 to \$20,000 per annum for running expenses. It is possible, however, to do a great work in a building costing a half less, and the current expenses can be reduced to \$10,000 per annum. I earnestly hope that some friend of the College, who is interested in promoting the social welfare, will provide the means for an undertaking which cannot fail of attaining conspicuous success.

The Educational Museum which I have in mind is already sketched out in the plans for the development Educational of the College plant. It will connect the new Museum Horace Mann School and the Milbank building on the 120th Street front. The ground floor provides for a kindergarten room and accompanying class-rooms, thus freeing the present kindergarten quarters for administrative offices. The upper floors give ample space for exhibition purposes and for the storage of illustrative materials. It is estimated that the cost of such a building will be about \$250,000. The expense of maintaining the department, in-

cluding the care of the building and the purchase of materials, will vary from \$15,000 to \$20,000 annually.

I must also point out to the Trustees the necessity of making changes in the Main Building, in order to adapt it to College uses when the School is removed to Other Rethe new building. New equipment and furnish-quirements ings will be required for the entire second floor. The heating of the School building must also be taken into consideration. The capacity of our present plant is now taxed to the utmost. The economical arrangement is evidently a separate heating plant, capable of supplying our present buildings, and of expanding to meet all future needs. These expenditures, however great they may be, are obviously a necessity, and must be met.

It remains for me to say, in conclusion, that while the needs of the College seem to be unlimited, the possibilities of our work are unbounded. There is to-day no institution similarly equipped and organized in all the world. We have the support of a great University and the confidence of the teaching profession. The influence which we are even now exerting extends in all directions and includes within its scope all grades of public instruction, from the kindergarten to the university, and practically every phase of educational and philanthropic activity. Our efforts are not confined to any section of the country, nor are they restricted to any class or sect. As a national institution, therefore, we aim to serve a people that puts its trust in education as the surest guarantee of individual liberty and social righteousness.

Respectfully submitted,

JAMES E. RUSSELL, Dean.

## SUMMER SESSION

#### REPORT OF THE DIRECTOR

FOR THE SESSION OF 1900.

To the President of Columbia University in the City of New York:

SIR:

There is submitted herewith a report of the first Summer Session of Columbia University, held from July 2 to August 10, 1900.

The institution of a regular Summer Session of the University is the result of an inquiry undertaken in accordance with the terms of the following resolution, which was passed by the University Council on April 19, 1898:

Resolved, That a committee of five professors of the University be appointed to inquire and report to the Council as to what extension, if any, of the summer work of the University is possible and expedient during and after the summer of 1899, and that the President be requested to act on such committee as its chairman.

The President appointed to serve with himself upon such committee Professors Butler, Munroe, Cohn, Robinson, and Russell.

On December 20, 1898, this committee reported recommending that the University undertake to offer organized instruction during a portion of the summer vacation, such instruction to be given by officers regularly appointed for the purpose, their salaries to be paid by the University in the ordinary way.

In the judgment of the committee it was impracticable to organize summer instruction on a satisfactory basis for the summer of 1899, but they advised that in case any summer instruction should be undertaken in that year by Teachers College, authority should be asked from the Trustees to offer certain courses of instruction under the jurisdiction of Columbia University. The committee reported the following resolutions, which were adopted by the University Council:

Resolved, That the University Council respectfully request the Trustees to grant to the President for the year 1899, discretionary authority:

- 1. To establish summer classes in various subjects in connection with Teachers College;
- 2. To open the gymnasium and laboratories for summer use.

It is understood that the President is expected not to exercise this authority unless he is reasonably satisfied that these classes can be maintained and these privileges offered without cost to the University.

This discretionary authority was not exercised by the President for the reason that upon more mature consideration it seemed inadvisable to establish a Summer Session until it could be organized and equipped in a way that would be entirely worthy of the University, and for such organization and equipment a considerable period of time was necessary.

Meanwhile, however, the details of the organization of a Summer Session were under consideration, and at the request of the President a specific plan for such organization was prepared and submitted. This plan contained provisions for the administration of a Summer Session, a suggested selection of courses of instruction, and a financial estimate of the cost of a Summer Session and the probable income from it. The provisions of this proposed plan were laid before the Committee on Education of the Trustees, who authorized the following announcement, and reported the authorization to the Trustees on March 6, 1899:

"A Summer Session will be established at Columbia

University in the summer of 1900, details of which will be announced later. The summer work in Teachers College will form an integral part of this Summer Session, which will be so arranged as to meet the needs of elementary teachers, as well as of secondary teachers, and also normal-school teachers, supervisors, principals, and superintendents of schools. Credit will be given toward the various diplomas of the College to students satisfactorily completing the summer courses."

On May 1, 1899, the Trustees authorized the President, on behalf of the University, to appoint a Director of the Summer School, and to designate an Administrative Board to have charge of the School, this Board to consist of the President of the University, the Director of the Summer School, and the Dean of Teachers College.

Concurrent action was taken by the Trustees of Teachers College, and the two corporations thus became jointly responsible for the new departure. The Administrative Board so appointed immediately took steps to perfect a complete scheme of organization for a Summer Session of the University to be held in 1900, and under their authority and oversight the work now completed has been organized and carried on.

The organization of the Summer Session has been extremely simple. The Director, acting as the Executive Organiza- Officer of the Administrative Board, has had the tion general oversight of the Session. Upon the recommendation of the Administrative Board, the following persons were designated to give instruction in the Summer Session of 1900:

Department of Botany	3 courses
Francis Ernest Lloyd, Professor	
Joseph Edward Kirkwood, Assistant	
Department of Education	5 courses

Nicholas Murray Butler, Professor Franklin Thomas Baker, Professor Frank Morton McMurry, Professor

Paul Monroe, Professor John Angus MacVannel, Instructor Lida Brown McMurry, Assistant Amy Schüssler, Assistant	
Department of English	5 courses
Department of Geography  Richard Elwood Dodge, Professor Clara Barbara Kirchwey, Assistant	2 courses
Department of History	ı course
Department of Manual Training  Charles Russell Richards, Professor Oswald Rudolf Eklöf, Instructor Lucy Hess Weiser, Instructor	2 courses
Department of Mathematics	3 courses
Department of Philosophy	I course
Department of Physical Training	2 courses
Department of Physics	2 courses
Department of Psychology	2 courses
The courses of instruction offered were chose	n with a

The courses of instruction offered were chosen with a view to representing those subjects and those phases of

subjects for which it was supposed there would be the Courses of largest demand from Summer Session students. Instruction This expectation was not disappointed, for, as will be seen from the following table, every course offered attracted a sufficient number of students amply to justify its place upon the list. The titles of the courses in which instruction was given, the officers giving the course, and the attendance upon each course, are shown therewith:

COURSES OF INSTRUCTION, 1900

Instructor	Title of Course	• :	Enrollment			
Instructor	Title of Course	Men	Women	Total		
Prof. Lloyd Prof. Lloyd Prof. Lloyd	Department of Botany s3. Ecology s8. General Botany Research Course	2 3	7 15 1	9 18 1		
	Department of Education	5	23	28		
Prof. Monroe	s1a. History of Education	30	69	99		
Prof. Butler and Dr. MacVannel Prof. McMurry, Mrs.	s2. Principles of Education	34	110	144		
McMurry, and Miss Schüssler Prof. McMurry, Mrs.	s4 (1). Observation and Teaching	8	66	74		
McMurry, and Miss Schüssler Prof. McMurry	s4 (2). Practice in Teaching s10. Primary Teaching s13a. English in Secondary	8	11 78	11 86		
Prof. Baker	Schools Secondary	6	38	44		
		86	372	458		
Prof. G. R. Carpenter and Dr. Odell Prof. G. R. Carpenter and Dr. Odell Prof. Jackson	Department of English  sA. Rhetoric and English Composition  sB. Rhetoric and English Composition, advanced course s2. Anglo-Saxon Literature and	9	51	60 19		
Prof. Jackson Prof. Baker	Historical English Gram- mar s15. Shakspere s17. Nineteenth Century Poetry	9 18 10	27 46 48	36 64 58		
	Department of Geography	48	189	237		
Prof. Dodge Prof. Dodge	s2. Physiography s6. General Geography	4 1	19 35	23 36		
		5	54	59		

Instructor	Title of Course	Enrollment			
Instructor	Title of Course	Men	Women	Total	
Prof. Monroe	Department of History s1a. Development of Mediæval Civilization	2	13	15	
Miss Weiser	Department of Manual Training s1. Manual Training for lower grades	3	8	11	
Mr. Eklöf	s2. Wood-working for elemen- tary schools	4	6	10	
		7	14	21	
Mr. Keyser	Department of Mathematics sA. Solid Geometry	12	21	33	
Mr. Keyser Mr. Keyser	sı, Logarithms and Trigonome- try s2. Analytical Geometry	12 10	13 5	25 15	
	32. 7.1.1.1, 1.0.1.2	34	39	73	
Prof. Butler and Dr. MacVannel	Department of Philosophy s1. Historical and Critical Intro- duction to Philosophy	16	8	24	
Dr. Savage and Miss Bancroft Dr. Savage, Mr. Bojus,	Department of Physical Training s1. School Gymnastics, Hygiene, and Anthropometry s2. Practical Calisthenics and	2	17	19	
and Mr. Seikel	Advanced Gymnastics	2	21	23	
	Department of Physics	4	38	42	
Prof. Hallock	sr. General Physics	10	11	21	
Prof. Hallock and Dr. Tufts	sta. Laboratory course in Gen-	12	7	19	
	eral Physics  Department of Psychology	22	18	40	
Dr. Thorndike Dr. Thorndike	s2. Experimental Psychology s11. Genetic Psychology	20 16	17 35	37 51	
Total number of stude	ents receiving instruction in the	36	52	88	
several courses		265	820	1085	

Students enrolling in the Summer Session of the University were classified as former students, or as new students, according as they had or had not previously paid Adminisa matriculation fee in some department of the tration University. Students who had been enrolled in Teachers College previous to September, 1898, when the matriculation fee was first instituted, and those who had taken Extension Courses of instruction without matriculating, were

classified as new students and required to pay the matriculation fee of \$5. A uniform tuition fee of \$25 was established, and this payment entitled the student to attend any courses he might choose, not exceeding three in number. In a few cases and for reasons of weight, permission was given to students to attend four courses; but in all of these cases the subjects chosen were closely related. An additional fee of \$5 was instituted for the use of the lockerrooms, swimming pool, and other gymnasium facilities, and its payment was optional save in the case of students enrolled for the practical course of instruction in Physical Training, who were required to pay this fee.

The purpose of the restriction of each student to not more than three courses was to prevent undue dissipation of energy and attention. The wisdom of this regulation is even more apparent now than at the outset of the Summer Session, for a very considerable number of students, having enrolled for three courses of instruction, asked permission to be relieved from attendance upon one of the three, because they found the labor involved in carrying them all on together to be too heavy. Another year it will probably be found advisable to restrict the Summer Session students to two courses, only permitting a third course in exceptional cases, and for reasons of weight.

The Gymnasium and Swimming Pool were availed of by about 10 per cent. of the students. A much larger number might readily be led to take advantage of these opportunities if the administrative regulations in future are altered in view of the experience of the present summer.

All of the arrangements for the registration of students, for their examinations, and for the issuing of certificates, worked swiftly and admirably. None but minor readjustments are needed in this department.

It is the unanimous opinion of the instructors that the men and women registered at the Summer Session of 1900 were The Student a most earnest and devoted body of students.

Body Because of their application and maturity, and because of the concentrated character of the instruction in the

several courses, they were able, in more than a single course, to cover the ground which ordinarily occupies the attention of students in a course given two hours a week throughout the academic year.

The enrollment upon the several courses of instruction, as given above, shows that the total number of teaching-units was 1085, the teaching-unit being one student enrolled in one course. The average number of courses taken per student was, therefore, 2.6.

The following table shows the number of students taking one, two, three, and, in a few cases by special permission, four courses, respectively:

Students	taking	1	course	15	15
46	"	2	courses	146	29 <b>2</b>
"	"	3	"	246	738
"	"	4	"	10	40
				417	1085

Using 1085, the sum-total of students under instruction in all the courses, as the basis, the following table shows the distribution of the teaching-units among the several departments:

Botany	28	2.58	per cent.
Education	458	42,21	"
English	237	21.84	"
Geography	59	5.43	"
History	15	1.39	"
Manual Training	21	1.94	"
Mathematics	73	6.74	"
Philosophy	24	2.21	"
Physical Training	42	3.87	"
Physics	40	3.68	"
Psychology	88	8.11	"
		-	
	1085	100,00	"

The previous academic preparation of the student body is shown in the accompanying table:

Students Classified According to Previous Preparation

	Graduates of		Partial Courses in		Total	
Colleges	IOI	24.22%	37	8.88%	138	33.10%
Professional Schools for Teachers	143	34.30%	31	7.43%	174	41.73%
Other Secondary or Higher Institutions	64	15.34%	10	2.40%	74	17.74%
	308	73.86%	78	18.71%	386	92.57%
No Secondary or Higher Training					31	7.43%
					417	100.00%

It will be noticed that almost one fourth of the total enrollment was made up of graduates of colleges, and more than one third additional was made up of graduates of professional schools for teachers. In other words, 58.52% of the total attendance at the Summer Session was made up of students who, by reason of their previous preparation, were prepared to go forward in the University as candidates either for the degrees of A.M. and Ph.D. or for the Higher Diploma. In addition, 64 students (15.34%) of the whole number were qualified, by reason of their previous academic training, to go forward as candidates for the degree of A.B., either in Columbia College or in Barnard College; 308 of the 417 students, therefore, were prepared at once to take regular academic rank in some school or department of the University.

It is but fair to add that 68 other students, 16.31 per cent. of the whole, had pursued partial courses either in a college or in a professional school for teachers. Only 31 students (7.43%) of the total enrollment were without systematic training of some sort in an institution for secondary or higher education. These facts of themselves explain the high character of the work attempted and accomplished at the Summer Session.

As was to be expected, a large majority of the students were teachers. The following table shows the class or grade

of educational work in which the 336 students who are teachers are engaged:

Students Classified According i	o Tec	aching	Positio	712S
Elementary Schools	212		50.84	%
Secondary Schools	69		16.55	
Higher Educational Institutions	4		0.96	
Normal Schools	20		4.80	
Superintendents	8		1.94	
Special Teachers	I 2		2.88	
Teachers in Private Schools	ΙI	336	2.61	80.58 %
-				
Not engaged in teaching		81		19.42
Total		417		100.00 %

Of the 417 students in the Summer Session, 342 (82%) came to the University for the first time; 75 (18%) had been previously matriculated in the University. The following tables show the classification of students according to sex, and as old or new students in the University:

Students Classified According	to Sex		
Men	<sup>27.34</sup> 72.66		cent.
417 Students Classified as Old an	100.00 id New	per	cent.
Previously matriculated in the University New students	y		
		417	TOO %

An inspection of the registration blanks shows that a very large proportion of the total student-body, 367 (88%), came from the States included in the North Atlantic division. No fewer than 282 of these were from New York State, and all but 40 of this number were from New York City. The number of States and Territories represented on the list of students is 26, and in addition there were 2 students whose residence was given as Ontario, Canada. It is entirely safe to assume that in future years there will be a marked increase of the students coming from the more distant States and Territories. The following table shows the students of the Summer Session of 1900 classified according to residence:

# Students Classified According to Residence

North Atlantic Division:       2         Maine		
Queens		
New Jersey	367	88 %
South Atlantic Division:  Maryland		
South Carolina. 2 Georgia. 1 Florida . 1	12	2.88 %
South Central Division:  Kentucky	9	2.13 %
North Central Division: Ohio. 11 Indiana. 2 Illinois. 2 Michigan 3 Missouri 4 Kansas. 1	23	5·55 <b>%</b>
Western Division: Montana	4	0.96 %
Canada	2	0.48 %
	417	100.00 %

In order that the present Summer Session might not become a charge upon the already severely taxed resources of the University, a Guarantee Fund of \$5000 was secured by the President to meet any deficiency which might arise in the conduct of the new undertaking. It gives me pleasure to report that not only will it not be necessary to draw upon this Guarantee Fund, but that the income from the Summer Session of 1900 is in excess of the disbursements on account of the same by \$2403.89. The Summer Session has been charged with the cost of keeping the buildings of the University open and in order, and with all of the printing, postage, clerical service, and incidental expenses due in any way to its establishment. It has also been charged, of course, with the amount allotted to the several officers of instruction and their assistants.

The following statement, which is complete in all respects, shows the income and expenditures in detail:

	Income			
A. Matriculation fees. 342 new B. Tuition fees 416		\$5 \$1 25 10	,400	
ı (coll	ege officer)	free.	\$12,	110
<del></del> `	,			
Total enrollment417 C. Gymnasium fees 48 stud	ents at \$5			240 — \$12,350 00
	Expenditu	res		— \$12,350 OO
	Estimate of			
7	an. 31, 189	. Actual.		
A. Administration:				
I. Advertising				
2. Allowances to cler-				
ical staff		\$270 00		
3. Extra clerical ser-				
vice}		163 00		
4. Postage and Ex-				
press		212 29		
5. Printing		507 29		
6. Stationery and In-				
cidentals	\$1,300	76 33		
B. Instruction:			\$1,228	91
1. Salaries\$8,400		\$7,110 00		
2. Supplies 100		98 20	7,208	20
Carried forward —	\$9,800		\$8,437	11

Brought forward  C. Buildings and Grounds:  a. Columbia University:		\$9,800			\$8,437 11 8	\$12,350 00
I. Water Rates	\$15C		\$147	74		
2. Gas and Electricity	100			49		
3. Fuel	350		321			
4. Cleaning 5. Superintend-	<b>7</b> 5		33	36		
ent's Supplies 6. Labor and Attend-	150		98	36		
ance	600	1,425	593	57	1,278 00	
b. Teachers College		235			231 00	
		\$1,660			\$1,509 00	
Total estimated		\$11,460			Actual	9,946 11
Excess of income over expenditures \$2,40						\$2,403 89

The total amount of fees of all kinds received from 417 students being \$12,350, the average fee paid by each student was \$29.61.

The total expenditures on account of the instruction of 417 students show the following per capita disbursements:

The excess of receipts over expenditures, per capita, amounted, therefore, to \$5.76.

The successful experience of the Summer Session dealt with in this report is, in my judgment, a conclusive arguRecommen-ment in favor of organizing the Summer Session dations as a permanent and integral part of the University. With a view to this, the following recommendations, based in part upon the results of the present year, are submitted for consideration:

1. That the Trustees be requested to authorize the establishment of a permanent Summer Session of the University, and to make adequate provision for the organization and administration of the same.

- 2. That the Summer Session consist, for the present at least, of courses of instruction of thirty lectures each, or their equivalent in laboratory or field work, and that these exercises be distributed over a period of six weeks, instruction to be given on five days of each week. It is the well-nigh unanimous opinion of the student-body of 1900 that such an arrangement is preferable to the one adopted this year of making the Session one of five weeks of six days each.
- 3. That the courses of instruction offered at the Summer Session be selected and arranged with reference to enabling students to carry on a continuous scheme of work leading to a degree or diploma, either in connection with the work of the regular academic year or in a series of Summer Sessions.
- 4. That the satisfactory completion, at not less than four Summer Sessions, of courses of instruction having in all a value of eight hours work weekly for one academic year, be accepted as fulfilling the minimum requirement of one year's university residence.

Respectfully submitted,
NICHOLAS MURRAY BUTLER,
Director.

August 10, 1900.

#### LIBRARY

## REPORT OF THE LIBRARIAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1900.

To the President of Columbia University in the City of New York:

SIR:

I have the honor to submit herewith the annual report of the Library of this University for the year ending June 30, 1900.

The work of this Library is accomplished under the following organization and departments:

Orders and Accessions: Margaret Van Zandt, Supervisor.

OrganizaThe work of this department is indicated by its tion title. Officers of the University communicate directly with the Supervisor with regard to all purchases.

Catalogue and Classification: Harriet B. Prescott, Supervisor.—The work of cataloguing and classifying a library like our own calls for expert knowledge and administrative skill of a high order. The general method followed is that known as the Dewey System or Decimal System—with some modifications.

Serials: James T. Gerould, Supervisor. — This department includes all periodicals as this word is generally accepted and used; all annuals and other reports (public documents, reports of semi-public societies and organizations, etc.); all pamphlets; and all other unbound material, except books issued in parts; and all binding.

Shelf: George T. Heckroth,\* Supervisor; Walter M.

Gilbert, Acting Supervisor (since Mr. Heckroth's resignation).—In addition to care of the books on the shelves, gilding, repairs, etc., the Supervisor of this department has charge of all duplicates, of Columbiana, and of all dissertations and essays presented for advanced degrees.

Readers' Department: Reference Division, C. Alex. Nelson, Head Reference Librarian and editor of Library publications; Edward R. Smith, Reference Librarian, Avery Library; William A. Switzer, Reference Librarian, Law Library.—It is hoped that this is the beginning of a full corps of reference librarians; including at least one thoroughly competent, well-trained, experienced man for each of the great divisions of the Library. This corps of expert workers is absolutely necessary to the highest efficiency of a large library like our own, and can do more than all other agencies combined to make such a library accessible and useful. So far as the general reader is concerned, especially the inexperienced reader, the large card catalogue is sure to break of its own weight. The average student is simply swamped by the multiplicity of references. To all these readers the reference librarians can be guide-posts and most desirable aids in every undertaking. The completion of this corps of workers is a matter of time and of money; of how long a time and of how much money remains to be seen.

Loan Division: Frederic W. Erb, Supervisor. — This division has the general care and oversight of all the books of the Library while in use—including temporary exchanges with other libraries.

The Librarian reserves for himself, in what may be called the Executive Department, general executive duties; being responsible for the general relations of the Library to the different departments of instruction in this University, to other libraries, and to the general public. He determines the general policy of Library administration; the appointment and dismissal of all members of the staff; and with the general advice and consent of the President and officers of the University, the initiative in ordering for departmental purposes being granted the head of each department, he

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determines the selection and purchase of all books and periodicals.

For the work of each department, please refer to the first annual reports, hereto attached and made integral portions of this report. Your attention is directed especially to the list of gifts and purchases in the report of the Order Department; to the increased efficiency of the Cataloguing Department, under Miss Prescott's methodical administration; to the unusually clear statement of the place and value of the Department of Serials, made by Supervisor Gerould; and to the increased uses of the Library, as shown in the reports of Mr. Nelson and Mr. Erb.

There have been comparatively few changes in the personnel of the Library staff during the year. Mr. W. G. Changes in Baker, so long connected with this University, Staff found the burden of years and physical infirmities so great as to compel his retirement from the Serials Department. Mr. Gerould was advanced to the vacancy thus created. Mr. Heckroth withdrew from the Shelf Department to accept a more promising position in the business world, and Mr. Gilbert (of the Serials Department) was transferred to the care of the shelves.

It was not thought necessary to continue the office and duties of Deputy Librarian, and Mr. Nelson became Head Reference Librarian and editor of Library publications.

There have been the usual changes among minor employees.

The statements made by some of the Supervisors, in their reports, concerning the pressing demand for more room, The Over- cannot be too sharply emphasized. The action crowding which would bring most immediate and complete relief would be the removal of the Law School to a building of its own. This would permit the use of the present Law Reading Room as a Periodical Reading Room—for which it seems to have been especially designed; would enable us to take the cataloguing force out of its cramped quarters and give it the present Periodical Reading Room—where its efficiency would be largely increased; we

could enlarge the space now occupied by the Loan Desk—action which seems almost imperative; and on the upper floors of the Library we could find room for a Science Seminar, for systematic care of maps and charts, and for a special collection and exhibition of Columbiana,\* incunabula, rare books, etc. The Science Seminar room ought to be secured at once. There is crying need of it; which has been very inadequately met thus far by establishing departmental libraries, and by scattering scientific periodical literature all over the block.

In this connection it should be remembered that the noble memorial Library building was originally dedicated exclusively to the work indicated by its name. Aside from the executive offices, which are very properly established at this gateway to the University, the entire building is intended for Library purposes. Its working capacity is estimated to be one million volumes and the efficient and the convenient use of the same. At present (excluding the President's offices and uses, and the rotunda and its galleries) nearly two-thirds of the sub-basement, nearly one-half of the basement (or first floor), nearly one-half of the main (or second) floor, nearly one-half of the third floor, and all of the fourth floor is used for other than Library work, and is in no way under our control. Yet already we have nearly a third of our complement, even under the rather generous estimate of capacity noted above; while improved methods in use and management continually demand more space rather than less.

By and with the consent of the President of the University, the special fund of ten thousand dollars, for the academic year 1899–1900, was divided among certain The Initiadepartments or divisions of the University: the Librarian withholding a small portion of this Purchase fund for his own use, for purchases which do not readily fall within the interest and responsibility of any special University chair. Within the limits of these departmental appro-

<sup>\*</sup> Including, if possible, the large and valuable collection brought together by the loyalty and generosity of Mr. John B. Pine.

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priations or grants, the University officers were permitted and urged to take the initiative in ordering. The Librarian reserved to himself the approval of all orders before they became final, which brought him into frequent and much-desired conference with heads of departments; and he constantly suggested orders which seemed desirable. But he made no demands upon any departmental fund without the full knowledge and consent of the head of that department.

This system has proved so satisfactory and efficient that it will be continued for another year at least.

From funds at the service of the Library during the past year it was possible to set aside \$1000 with which to Completing complete (as far as might be) sets of periodicals Sets and other serials. This Library is peculiarly rich in its collection of serials, which increases in value with passing years. This is especially true, perhaps, as regards scientific serials; since by far the greater part of the results of scientific investigations is thus reported. The missing numbers of any given set are not always easily found; but the services of a firm making a specialty of search for such titles proved very efficient, and the general results of the effort were highly satisfactory.

The completion of any given set means far more than simply so many volumes added to the Library. The fact that there are missing numbers causes the reader and student to hesitate in his reference to a broken set: thus decidedly lessening the general influence of the entire collection. All numbers of a complete set are frequently consulted, whereas even the present numbers of a broken set are ignored because of the uncertainty attending research.

In this connection it is a pleasure to be able to report that through the generosity of the gentleman who gave the UniThe Town-versity the Townsend Collection of newspaper exsend Collection of this country during tion the period of the Civil War, that collection is to be completed to January 1, 1902. Newspaper articles on this portion of our national history are increasingly rare; and it is scarcely possible that much of serious importance

will appear in the press after the date named. The collection will then be as complete as it is unique. Mr. Townsend makes these closing volumes a labor of love; the expenditures being entirely for copyists and other assistance.

The present rule under which University officers may enjoy the advantages of the Library reads as follows: "College Officers may borrow not more than twenty volumes, all subject to recall and fines; and shall university return or renew all books during the first week of the October term, and the week preceding Christmas, Easter, and Commencement."

It is hardly possible, and almost never desirable, to limit our officers in this way. It not infrequently happens that twice twenty books are needed for some special work in hand. This limitation has been absolutely ignored for years.

It is scarcely conceivable that fines shall be levied on officers, under any circumstances.

Only in exceptional cases will books be required for a full quarter of a year, nor should they be kept from circulation so long as this except in an emergency. All books belonging to the Library should be returned or should be subject to actual invoice at least once a year; which is not feasible under the clause in the rule which practically permits unlimited renewals.

The following is suggested as a substitute for the present rule:

"The number of volumes which University Officers may borrow, shall be determined by the exigencies of their work; but all such volumes must be subject to the call of the Librarian at any time, to meet the unusual or necessary demands of others. Each University Officer will pay all possible regard to the work and need of other officers, and of the general University public; and will therefore borrow carefully, and return borrowed volumes to the Library as soon as possible, consistently with his own necessary demands.

"No book shall be retained by a University Officer longer than one year.

"Books borrowed for departmental or laboratory purposes

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shall be so charged, and shall not be entered upon the private accounts of University Officers.

"In determining who are University Officers, the Librarian shall be guided by the official directory of such officers, as issued at the opening of each University year."

The question of departmental libraries has not two sides only, but a dozen; and is perplexing and vexatious when-Departmen- ever and wherever it forces itself to the front for tal Libraries consideration. It is entirely natural that men engaged in special work desire to have near them the books which are of peculiar value and assistance to them. Each one of a hundred good carpenters naturally wishes to have his tool-chest within easy reach; and where each furnishes his own tools, at great though necessary expense because of the constant multiplication of tools, no question arises and friction is unknown. But this is only tolerable because carpenters are constantly moving from job to job and from place to place, and must take their tools with them. If the same hundred mechanics are employed in a given shop, or in a series of shops within the same enclosure and but a few steps apart, it would be the part of wisdom, evidently, to give each workman the tools and machinery absolutely peculiar to himself and his work; and to establish at a common centre the machinery and tools to be used by all as occasion may require. The few moments' time taken by each mechanic to carry his work to a given machine and back again; or to go to a given place for a given tool, and return it again when not in use; or, better still, to telephone some central storekeeper to send him, by a low-wage lad, just the tool or tools that he may need for the time beingthe time "wasted" in this way, under this system, will not possibly equal the expense created by giving each man all the tools and machinery he may ever have occasion to use.

The analogy of this with University work seems perfect. There ought to be created in each department or division a laboratory library; in which should be placed all books the use of which is naturally and practically restricted to the department in question—books which are not at all likely to

be in demand by the officers or students of any other department—books which are really in the nature of laboratory equipment. Even then, care should be taken that unforeseen demands be met with as little delay and difficulty as possible. All books other than these should be in the general Library, subject to easy call and immediate delivery.

All the conditions at Columbia favor the adoption of this plan. The Library is so centrally located, the campus is so small, and the means of demand and delivery are so unusually satisfactory (or can easily be made so), that almost any book can be called for and delivered at almost any room of any building in not to exceed five or six minutes' time; which is about as quickly as one could find and take the book, himself, from the shelves of an adjoining room. Even if there is a slight loss of time and a little delay, this is more than compensated by the absolute safety of the books while in the Library, and their general and continued availability for all officers and all students rather than for a few.

With the Library open from half-past eight in the morning until eleven o'clock at night, throughout the University year, except Sundays and three holidays, there seems to be no excuse for the departmental library at Columbia.

The establishment of a bindery in the Library, directly under our own control, ought not to be delayed longer than another year. It is not probable that the work A Library will be done in any more satisfactory manner than Bindery at present, and it is doubtful whether there will be any marked saving in expenditure—though we are assured that the cost will not be increased. But the risk and the wear and the expense of handling to and from the bindery, the possible loss by fire or otherwise while at the bindery, and the four weeks' loss of the use of periodicals while being bound—all this will be avoided. By that strange perversity of inanimate things, it is rarely necessary to immediately refer to some special article or some portion of an article in a given magazine without finding that that particular issue is at the bindery at that particular time. The general efficiency of the Library will be greatly increased by having all this 350 LIBRARY

work done on the campus under our constant and immediate supervision. The proposition has been thoroughly canvassed during the year just closing, and definite action waits only upon sufficient floor-space. This is only one of many demands which emphasize the necessity of at least one more building which by the transfer of work and classes will remove the pressure upon the Library.

The question of printing our catalogue cards has been under more or less constant consideration for some years. Printing For the highest efficiency of the Library we ought Catalogue to have the following catalogues: The general Cards (complete) catalogue; a (partial) catalogue in each Seminar, covering the work of that Seminar; a (partial) catalogue in each department, for the work of that department; and what might be termed a reserve catalogue, from which to supply worn or disfigured cards, and for other uses. Thus far we have averaged about three cards to each title for one catalogue only. For the highest efficiency, therefore, we ought to print not less than twelve cards for each title.

At present, the work of our copyists (corresponding to the work of the printer) costs us about two and one-half cents for each card, including the matter which must be written on each card even if we use the printing press; or about eight cents for each title, for a single catalogue. The Boston Public Library, using two linotype machines, with a large amount of "extra" printing to keep men busy, and with an extraordinarily competent foreman, claims to print its cards at a cost not to exceed nine cents per title with "books" of twelve cards for each title. The lowest estimate secured in this city has been fifteen cents per title with "books" of not to exceed fifteen cards for each title.

It is readily seen that with a slight increase of our present expense we can print the four catalogues mentioned where we are now able to have but one. But other expenditures must be considered—such as catalogue-cases and increased service. It is entirely evident, therefore, that we may not wisely undertake printing until we are able to meet these

enlarged and doubtless increasing expenses, and that we must content ourselves with the single catalogue until we are able to print.

There is a plan in contemplation, supported by the American Library Association through one of its sub-committees, by which it is proposed to print all cards for all libraries (or for such libraries as will become party to the scheme) at a common centre, under one management, and under a (thus possible) expenditure far below that mentioned above - an expenditure which possibly may not exceed one cent per card. There are many obstacles in the way of the success of such a movement; and to some it seems an undertaking impossible of success. But some of the most experienced and approved librarians favor this, are willing to risk much in the experiment, and are confident of success. For a brief statement of the economy secured by cooperation, your attention is called to the reference in the reports of Miss Prescott and of Mr. Gerould as to what has been accomplished already in cataloguing science periodicals.

Under all the circumstances it seems wise to hold the matter of printing in abeyance, awaiting the outcome of this somewhat novel venture.

It is the sincere desire of the University authorities that Columbia shall be a positive and helpful factor in the life of the metropolis and of the State. Responding to Coöpthis impulse and purpose, its officers are singularly active in all public movements; especially in those undertakings in which their expert knowledge comes in play. The University as an institution, also, touches helpfully many public interests.

This Library has loaned the Botanical Garden its entire collection of books, serials, and pamphlets covering the peculiar work of the Garden; reserving only a comparatively small number of elementary works for the use of undergraduate students. A duplicate catalogue is maintained, by which those working at the Library may know what titles the University holds, and where any specific book is shelved.

Near the close of the year, the Library loaned the New York Zöological Society the catalogue of birds, issued by the British Museum of Natural History.

The report of the Supervisor of the Loan Division tells in detail of loans made to other libraries. This generous policy on the part of the University Trustees has been keenly appreciated.

The American Library Association held its annual meeting in Montreal during the first week of June. Although both the locality and the programme were attractive, the time seemed unfortunate—as it immediately preceded our Commencement week. But we were glad to have a representative in Mr. Gerould, who went as our delegate.

The New York (State) Library Association held its annual meeting in October, at Niagara Falls; with an unusually strong programme and large attendance. The Librarian of this University was elected President of the Association. The mid-year meeting was held in New York, in March, in connection with the New York (city) Library Club, and is thought to have been an unusually successful and satisfactory gathering. It was preceded by a prolonged and valuable conference in which the librarians of Yale, Harvard, Princeton, Pennsylvania, Cornell, Washington (Library of Congress), and Columbia participated, encouraged and assisted by the President of this University, whose guests these gentlemen were for the evening. It was followed by an allday meeting, at this Library, of the A. L. A. special Committee on Cooperation and Printing. An unusually large number of visiting librarians spent the greater part of one day in this Library.

The New York (city) Library Club held its regular February meeting at this University, on invitation and as our guests.

Special visits have been made to this Library by classes and instructors from the three library schools of this vicinity.

We have continued the cooperative work in cataloguing science periodicals, for the results of which see the report of the Cataloguing Department. The relations of this Library and its staff and readers with the libraries of the city have been peculiarly pleasant and helpful throughout the year. Acknowledgment is hereby made to the Director of the New York Public Library and to many of his assistants for courtesies received during the year.

The Library exhibit at the Paris Exposition consists of the usual swinging panels, on which appear photographs of the interiors and exteriors of University buildings, The Paris statistical and graphic charts, etc.; and of two Exhibit large volumes (prepared under the direct supervision of the University architects) including floor plans of all University buildings, with photographs to take the place of elevations; and with views of interiors, of old buildings on the earlier sites, etc. The collection is of peculiar interest and merit, and will be deposited in the Avery Library at the close of the Exposition.

Among the more notable donations of the past year have been the recurring and large-minded grant of ten thousand dollars by an unknown friend; the generous gift Gifts by Mr. and Mrs. Avery of five thousand dollars, increasing the endowment of the Avery Library; the remembrance of the University by Professor Egleston, who before his death placed some two hundred volumes of his private library at our disposal; renewed and thoughtful consideration by the Duc de Loubat; the gift of Mrs. Alice King Schuyler of valuable books from the private library of her late husband'; the peculiarly timely remembrance of Mr. William B. Parsons, one of our own alumni, in the shape of a large number of valuable Chinese books; and the transfer to this University of the Garden Library of the New York Southern Society—a very complete collection illustrating the history, literature, and institutions of the South; or, as set forth in its catalogue, "largely if not entirely concerning the factors, forces, and principles which have controlled the destinies of the Southern people for more than a hundred years."

As keenly as all this generosity is appreciated, it must be

recorded that the Library stands greatly in need of an increasing number of such intelligent and wide-eyed friends. Some one might well add another ten thousand dollars to the general fund for annual purchases. Another might give say five thousand dollars a year for each of three years for the uses of the division of History, Political Science, and Sociology. A third might match this last with equal generosity shown to the work in Philosophy and Education. thousand dollars for each of three years would go very far towards completing our sets of periodicals - which would then be one of the most remarkable collections of this kind in the country. A thousand dollars a year for each of five years would be none too much for the care of all unbound material, maps, and charts. Another thousand dollars could be profitably expended each year in preparing and printing finding lists for departments or special themes. A like amount, carefully administered for each of five years, would create an almost perfect and extremely valuable and unique collection of reports and statements of State and municipal officers and organizations, social and fraternal associations, industrial and educational and ecclesiastical institutions, and the like. It is no exaggeration to say that over and above the salary list and the necessary expenses of administration, not less than fifty thousand dollars might be wisely and economically and efficiently expended each year upon this "scholars' laboratory"; which is not only the heart of this University, but is rapidly becoming the Mecca of students and investigators from every part of the Union.

Inquiry has been made during the present year as to the desirability and feasibility of establishing a down-town A Down- branch of this Library for the use of our alumni. town Branch The suggestion has been most carefully considered, but it does not seem possible to accomplish this at present. It is not improbable, however, that some such favor can be extended to our graduates within a very few years, and perhaps much sooner than is now apparent. The desirability of such a branch goes without question. Recognition is due those alumni who tendered

the free use of their offices, should one of these seem desirable for this purpose.

The entire experience of the year shows clearly the increasing acceptance of scientific methods, laboratory methods, in all instruction. More and more is the The Library Library becoming the very heart of University life. It is not a museum, it has no "show rooms," of University it spends little or no money on rare bindings or upon other bibliophilic eccentricities—all very harmless, even very desirable, in other places. It is simply and always the scholar's laboratory. No matter what his work may be, the scholar turns to the library daily and hourly for counsel, assistance, inspiration, and newness of life. He recognizes that the best books are the best men and women at their best, always ready to be his most beloved and most helpful companions. The longer he associates with them, the more he is drawn to them and the easier he finds it to place himself under their spell. They supplement his weakness with their strength, his ignorance with their knowledge, his foolishness with their wisdom, his timidity with their courage, his uncertainty with their assurance, his doubt with their most positive conviction.

The library which is well equipped and well managed will do all in its power to foster and strengthen these relations. Its first thought, its most constant thought, is The Reader the reader. It must get books for him, it must the Chief get books to him, it must get him to books. By Concern every ingenious device possible it must lessen the distance, and shorten the time, and make plain and easy the path between the student and these new friends. The library must always be a tempter—a good tempter, a successful tempter. It must know what its readers want and what they need; and it must supply as much of the former as will lead to the latter. The satisfaction of the reader is the sole object and aim of all wise and successful library administration. Books can be put anywhere and brought from anywhere; they can be stored in the heavens above, or upon the earth beneath, or in the

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caverns under the earth — all this matters little. The chief concern is to be given to those who use the books: to see that they get the books surely and quickly; and that for the use of the volumes they have light, air, a comfortable temperature, room, and every convenience for writing and notetaking, with as much quiet and isolation as is possible. No expenditures in other directions can possibly make good any neglect or loss in these matters. No grandeur of buildings, no mere vastness or variety of collections, no ostentation of any sort whatever, can atone for the loss of opportunity or for unnecessary restrictions in the use of the volumes themselves.

Recognition is hereby given to the Supervisors and other members of the Library staff. Their efficiency, loyalty, and faithfulness deserve high praise.

I beg leave to add an expression of my keen appreciation of the many courtesies extended to me during the year by the Trustees and Officers of the University and by yourself.

Respectfully submitted,

JAMES H. CANFIELD,

Librarian.

July 2, 1900.

## APPENDIX COLUMBIA UNIVERSITY LIBRARY

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" Post	1	_	Maryland Educ. Bd	2	
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La Plata Museo	1	i _	" Lunacy Com.		I
Larkin, T. F Laws, S. S	I	I	" Treas Weather Bur.	2	2
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Univ		6	Massachusetts Agricul.		,
Lemcke & Buechner .	2	1	Coll		1
Lewis Inst		I	Arbitration	_	
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	vice Com. District Po-		I	Art " Throat Hos-	I	I
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	Com		7	Michigan Agric. Bd.	2 3	
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6.6	cese R. R. Com.	2	I	Middletown Homeop. Hospital	6	
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	Savings B'ks			eign Wars of the U.S.	I	ļ
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4.4	of Women.		11	Scotia		2
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	Woman's		1	Minnesota Corrections		3
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" Health Bd	2	5	Phi Delta Theta Fra- ternity	I	
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### THE GYMNASIUM

## REPORT OF THE DIRECTOR FOR THE YEAR ENDING JUNE 30, 1900.

Hon. Seth Low, LL.D., President, Columbia University, N. Y.:

### DEAR SIR:

I have the honor to submit the following report of the work of the Gymnasium Department for the year 1899–1900.

The staff has been as follows:

WATSON L. SAVAGE, A.M., M.D
GUSTAV H. BOJUS
G. R. Seikel
CHARLES HOLROYD
FRANK KIDDE
GUSTAV BEARDSLEY
(Paid by students.)
M. Gouspy
(Paid by students.)
Louis Regal, Jr Rail Office Attendant (discharged).
DAVID R. THORNE " " "

The gymnasium opened with the first day of College work, the first two weeks being occupied in lectures to the Freshman class and the physical examinations of its members. The regular work of the required courses followed and was kept up throughout the year until the middle of April, when the examinations of the members of the Sophomore class were taken with the closing up of their gymnasium courses.

The result of the season has developed an interesting problem, which must be dealt with, it seems to me, early in the coming year. A number of men in the class of 1901 have not yet completed their work in my Department, and

in some instances it is reported to me that they do not intend to do this work. In order to avoid the matter being carried forward to the end of the Senior year, I beg to urge that steps be taken which shall bring these young men to a realization of their duty in time to fulfil their obligations before receiving their diplomas. Until some definite move of this kind is made and test cases established, I anticipate that we shall have a considerable number who are not inclined to perform their regular work. This is shown in the increase of the number of those in my Department who have absented themselves from their exercises during the year. In the class of 1902 c. there are 31; 1902 s., 29; 1903 c., 20; 1903 s., 38. The total number conditioned was thus 118. The total number enrolled in the required courses, less those excluded for incapacity, was 429.

The deficiencies from the year preceding (1898-99) stand as follows: 1901 c., 8; 1902 c., 12; 1901 s., 19; 1902 s., 16, making a total of 55.

If discipline is to be maintained in this Department, it seems absolutely essential that the above 55 be not promoted. There are very few reasons why a man should not be able to pass the work of this Department, provided he has any intention of so doing. He is required to faithfully attend the two periods weekly allotted to the work, and to submit, unless for reasons of weight, to a physical examination on entering and on leaving the courses. Faithful attendance to the training of certain of the athletic teams was accepted as an equivalent for gymnasium work one half the year. The managers were required to report the men who were to be so excused each week, certifying by their signature that the work in question had been faithfully done. Over 125 of the men in training for various teams availed themselves of this privilege for shorter or longer periods. Insistence on the regularity of the managers' reports will and has already helped the athletic teams by bringing in new candidates and exacting from them regular attendance. We have endeavored by this means also to bring it home to the students that the gymnasium work is

required as a means toward the habit of intelligent, healthful exercise, as well as an educational factor; where other athletic work is done, its necessity to the student is not so obvious as in cases where no such exercise is taken.

Besides the regular classes there have been held without interruption the usual optional classes in light and heavy gymnastics on Monday, Wednesday, and Friday, from 5-6 P.M. The courses were well attended as follows:

	Total.	Average Daily.
October, 1899	84	21
November, "	289	22
December, "	180	26
January, 1900	162	20
February, "	81	14
March, "	79	11

There have been a number of articles stolen in the locker rooms during the year, but in every instance the lockers had been left open, or those losing articles of greater value than usually left in the lockers had failed to have them put in the safe provided for that purpose. We know of no case where the locker has been broken open. The safe at the entrance to the gymnasium has been more generally used than before, having taken care of an average, throughout the year, of twenty-eight packages daily. The number of lockers in use was: in the Faculty Room, 42; in the general locker rooms, 1223; making a total of 1265. Four cases were found where students were using their lockers from the previous year, without having paid their gymnasium fee. We have provided for the future against incidents of this sort by the adoption of a set of locker rules, which have already received your approval.

The number of first physical examinations-measurements, strength tests, eye, ear, and aural tests and examination of general condition and of the heart taken during the year were 417. There were, besides, 141 second examinations taken; 98 formally recorded strength tests, and approximately 300 heart and condition examinations of candidates for teams. There is a constantly increasing number of students consulting the director in regard to their health; most of these cases

have been treated directly in the office; one case of measles was sent home. A number of the conditions were referred to specialists for treatment. Fifty-odd surgical dressings were made in the office. There have been no serious accidents in connection with the gymnasium work although a great deal of exercising of an advanced and difficult character has been done during the past year.

Of the 141 re-examinations made, 99 were of Sophomores who had taken their first examinations at or near the time of entrance into the gymnasium courses. We have averaged the results of the two sets of examinations and observe a very fair improvement in a right direction in the statistics which we here give. Especially to be noted is the improvement in the strength of the average individual, representing a gain of 576 lbs.

THE AVERAGE MEASUREMENTS OF NINETY-NINE SOPHO-MORES AND SECOND-YEAR MEN, JULY, 1900.

	MEASUREMENTS		JPON TERING	1	D OF YEAR
Age				_	
		. 6	0.27 k.	61	.65
Height {	Standing	. 17	0.95 cm.		.22
Treight ?	Sitting	. 8	9.43	90	.58
(	Neck		3.45	35	.13
	Upper chest—repose		3.16	8.4	.89
	Upper chest after expiration		0.02		.99
	Upper chest after inspiration	1 -	8.18		.69
	Lower chest—repose	,	4.63		·45
	Lower chest after expiration	,	2.48		.83
	Lower chest after inspiration Waist		0.31		.12
Girth	Hips		8.96		.02
	111ps		6.77		.19
		R	L	R	L
	Upper arm	24.70	24,22	25.42	25.17
	Upper arm flexed	28.13	27.41	29.36	28.63
	Forearm	24.69	24.18	25.52	24.96
	Forearm contracted	25.47	24.95	26.19	25.63
	Thigh	49.57	49.37	51.29	49.94
,	Calf	34.16	33.88	34.81	34.64
Depth {	Chest	. 1	8.53	19	.04
Depth	Abdomen	1	6.76	17	•75
ſ	Neck	. 1	0.21	10	.31
	Shoulders		0.06	41	.46
Breadth {	Chest		6.24		.28
	Waist		4.36		.23
Court 1 CA	Hips	3	1.99		.21
Stretch of Arm		17	8.6	180	.oI

### INTERCOLLEGIATE STRENGTH TEST

		POINTS		POINTS
<ol> <li>Strength of back</li> <li>Strength of legs</li> <li>Strength of right forearm</li> <li>Strength of left forearm</li> <li>Capacity of lungs</li> </ol>	48.3 '' 43.7 ''	129.6 211.6 48.3 43.7 11.8	202.4 kilos 324.3 " 55.2 " 50.6 " 253.2 cu. in.	202.4 324.3 55.2 50.6 12.6
<ul> <li>6. Strength of lungs</li> <li>7. Strength of upper arms (triceps and chest)</li> <li>8. Strength of upper arms (biceps and backs)</li> </ul>	3.8 dips	56.6	10.9 dips	125.
Total strength		501.6		770.1

Method of computation: Each kilo=1 point. In No. 5 divide number registered by 20; for No. 7 and No. 8 multiply total of dips and pull-ups by  $\frac{1}{10}$  of weight in kilos.

### The attendance statistics for the year are:

•	GYMNASIUM.		HAND-BALL	SWIMMING
	Floor.	Visitors.	COURTS.	POOL.
October, 1899	1447	1347		3552
November, "	3275	686	787	3493
December, "	2431	1325	1901	2278
January, 1900	3918	1643	984	2178
February, "	3667	1500	783	1461
March, "	3124	1443	863	1816
April, "	1781	1398	818	1766
May, "	1214	25ŠI		2714
June 1st-8th	209	529		441
	21,066	12,452	5236	19,700

### The average number daily on the floor was:

November	136.5	March	81.
		May June 1st-8th	
February		J 42.0 200 002 11.11.11.11.11.11.11.11.11.11.11.11.11.	55.

We have become convinced that the present method of keeping attendance is entirely unsatisfactory and that these figures do not begin to show the use to which the gymnasium has been put during the past year. The attendance has been taken only of the men working upon the floor of the gymnasium and in the hand-ball courts at stated periods, leaving out of account all the other special sections of the building, as,

for example, the track, the crew rooms, the bicycle rooms, fencing rooms, etc. The gymnasium building and all the rooms in it have been taxed, at certain periods of the day, to their utmost capacity; in fact, the room which was intended for the use of the Faculty has had to be used in the training of student teams and organizations. A better method of keeping attendance has been planned, and we shall have next year figures more nearly corresponding to actuality. As to the use of the Faculty room, I hope to keep it free to the Faculty by splitting up one of the other rooms in the building, as I am very anxious that the members of the teaching force make use of the facilities offered them here for keeping up their physical well-being. I should recommend also in this connection that the members of the Faculty be not charged the customary gymnasium fee.

A more detailed account of the gymnastic, fencing, and swimming competitions will be found in my report on the athletics of the past year for the Faculty Committee. I should not, however, omit to mention here the faithful and patient work of the teaching staff of the Department which lies at the basis of our many successes in these lines. Two years ago, when the gymnasium was opened, we did not have but one man in the whole list of students who had attained any proficiency in gymnastic or swimming work; our teams in both these branches now hold an undisputed supremacy in the college world. We believe, moreover, that this condition of things is not abnormal — the effect of the presence of one or two "stars" in particular events—but is the natural outgrowth of the rational use by many students of the gymnasium facilities. This feature is illustrated particularly by the keenness of the competition for the director's medals, given to the three all-round gymnastic champions of the University, in which the whole gymnastic team of eight men competed in almost every one of the seven programme events and in which the final score of the best three stood at 119-110-105. It was illustrated further by the remarkably fine list of the fifty strongest men of the University which won out so handsomely in the intercollegiate

comparison this year. The high average of so many of our men provoked special and admiring comment from Dr. Sargent of Harvard. Fifty men made the remarkable record of 1100 points or over, and were hard pressed in the competition by at least as many more making over 1000 points in their tests. We are each year more and more inducing the many to take part in good, healthful exercise, and it gives me great pleasure to say that the teaching force in my Department is in full harmony with these aims and has given me the most hearty and satisfactory help in their attainment.

Respectfully submitted,

W. L. SAVAGE,

Director.

July 12, 1900.

### REPORT ON COLUMBIA OVAL

To the President of Columbia University in the City of New York:

SIR:

Pursuant to the resolution passed by the Trustees at the November 6, 1899, meeting, and the instructions of your letter of November 20, 1899, I assumed charge of the Columbia Oval at Williamsbridge with the following results:

Finding the grounds and property at the Oval in very bad condition, and the caretaker seriously handicapped by lack of tools with which to make necessary repairs, I at once ordered proper implements for his use, not only to make these repairs, but to keep the grounds in good working order. These implements consist of a cart, horse, hand lawnmower, roller, and small tools, the total expenditure being \$137.27; all are still in hand.

The buildings have been repaired and the ground put in good condition. The glass in the grand stand and the house has been replaced where necessary, doors repaired and locks put upon them, the roof repaired, and the dressing-rooms underneath the grand stand have been covered and made perfectly dry, so as to be available for use by the various schools renting the grounds.

As soon as the weather permitted, attention was turned to the repairs necessary, such as getting the field ready for baseball, the track for games, tennis courts, shooting butts, etc. The paraphernalia necessary for carrying on the work, such as hurdles, jumping stands, and the like, were all repaired, and everything made ready for the opening sport, beginning early in the season.

In regard to the fence nothing was done, owing to the

fact that every week it was expected that the new roads would be cut, and the fences so repaired would have to be removed and put up on new lines, so that the money appropriated for repairing the fences was not expended, except for a portion that had been bought in by an outside party on speculation, which was offered to us for \$50 and declined; but, after some bartering and delay until the road was about to be cut, and it became necessary to remove the fence, I bought it for \$12.

After estimating very carefully the expense necessary to complete the season, I thought it advisable to repair the roofing over the grand stand, as it was leaking so badly that the whole structure was degenerating. I had the south, east, and west ends of the roof covered new with roofing material made of paper and tar, and also put a fresh coat of tar on the north side, with the result of making it perfectly dry, and it is now in good condition. This was done at a total cost of \$185, being just within the appropriation for repairs on the grounds, although this item was not figured in the original estimate.

Owing to the opening of the new streets upon the south and west of the Oval, it became necessary to move both the house and the barn belonging to the University upon ground where they will not be disturbed in the future. A special appropriation was made by the Trustees for this work, and the contract was made to complete it within the sum called for and set apart for the work. As the work has not yet been completed, I am not able to give the exact figures for the entire work.

The fence, which has been removed for the building of the new roads, will be replaced as soon as the contract is completed and our lines given us.

Upon taking charge of the grounds, I at once had circulars printed and sent to the various schools and organizations throughout the city, to the number of 150, and many personal calls were made upon the various schools for the purpose of calling their attention to the facilities there offered, with the result that the grounds were used by the

following schools for part of the season remaining: the Cutler School already occupying the ground, the Columbia Grammar, Trinity, Horace Mann, and Sachs schools. The New York Interscholastic Baseball Association played their championship games upon the field.

In addition to this, the Columbia Oval Cricket Club will use the grounds during the summer season when the schools

and college are closed.

Tickets such as the enclosed were issued to each of these associations, and the stubs kept on file in the office of the gymnasium: Cutler School, 109. Columbia Grammar, 82. Trinity, 57. Horace Mann, 59. Columbia Oval Cricket Club, 25.

The income from these sources has been \$495, a comparatively low figure for the facilities offered, but made so in order to get the grounds into use so that their condition

may be known in the future.

I made a special effort to obtain from the Railroad Company reduced rates for students using the Oval, but thus far my efforts have been unsuccessful. Owing to the trolley facilities, I find there are many of the students who use this means of travel, so that the railroad rate is not such a serious matter.

The use of the Oval for the University students has been as follows: The Freshmen and Sophomores held their annual games there. The Gun Club used these grounds for their regular practice. The Lacrosse team was given one date—Columbia Field not being available. The Freshman baseball team used it on April 14th, and the Track Association had thirty men in quarters for five weeks previous to the Intercollegiate meeting. All the schools held games upon the field and seemed to enjoy the improved state of the property and the attention paid to their wants.

It will be my policy, the coming year, to raise the rental of the grounds to the schools, and I have already canvassed a number of them with favorable consideration. I have another cricket club in prospect for next season.

I expect the income for the coming year to at least fulfil

the estimates made in my report last fall, as the property has been greatly improved both as regards buildings and grounds.

As an evidence of the condition in which the grounds have been put and kept during the year, we have but to refer to the games that have been held upon them, when numerous records have been broken in the track events. The Freshmen and Sophomore games alone reduced five of these records. Many of the participants in the games declare them the fastest grounds in New York City.

The greatest difficulty encountered in renting the grounds, and keeping them in the best condition, is the lack of water, which does not rise high enough to supply the shower baths or flush the closets, nor can it be used to wet down the grounds or keep the turf from burning up.

I take pleasure in commending the most faithful and intelligent service of Mr. Allan, the caretaker, who has performed his work with skill and economy, often using the services of his sons for days without compensation, and in every way showing keen interest and using good judgment in pleasing all and protecting the interests of the University.

Respectfully submitted,

W. L. SAVAGE,

Director of the Gymnasium.

# TREASURER'S STATEMENT OF EDUCATIONAL RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDING JUNE 30, 1900

### CURRENT RECEIPTS

Receipts from—				
Rents Fees:	• • • • • • • • • •		\$389,650	58
Matriculation Fees	\$ 4,890	00		
Tuition Fees	377,186			
Diploma Fees	12,090	-		
Gymnasium Fees	10,094			
			404,260	82
MISCELLANEO	us			
From Barnard College, for Elec-				
tric Current Supplied	\$1,145	31		
From Barnard College, for Steam				
Heat (2 years)	7,000	00		
Sale of Catalogues and Records.	103	00		
Sale of Books, School of Medicine	3	00		
Gift for General Purposes of the				
University	1,000	00		
		_	9,251	31
			\$803,162	7 I
Deficiency		• •	17,328	47
			\$820,491	.18
284				

### CURRENT EXPENSES

### ITEMS PROVIDED OUT OF THE GENERAL FUNDS OF THE $\begin{tabular}{ll} \textbf{CORPORATION} \end{tabular}$

CORFORATION				
I. General Expenses:				
Business Administration	\$18,608	13		
Educational Administration (less				
gifts)	67,496	89		
Buildings and Grounds	110,866	32		
Gymnasium	6,550			
Chapel	2,050			
Library (less receipts)	45,801			
Emeritus Officers	4,712			
Fellowships, Scholarships, and	7,7	J -		
Prizes:				
Less Income of Moffat				
Scholarship Fund \$ 90 00				
Less Income of Scher-				
merhorn Scholarship				
Fund 225 00				
Less Income of Stuart				
Scholarship Fund 240 00	27 644	20		
benotatinip rund 240 00	37,644	30		_
Att March 1977			\$203.720	т8
II. Philosophy, Philology, and Letters:		_	\$293,729	18
II. Philosophy, Philology, and Letters: English Departments			\$293,729	18
English Departments	\$26,816		\$293,729	18
English Departments  Germanic Languages and Litera-			\$293,729	18
English Departments  Germanic Languages and Literatures (less Income of Gebhard	\$26,816	48	\$293,729	18
English Departments	\$26,816	48 82	\$293,729	18
English Departments	\$26,816 12,641 12,550	48 82 00	\$293,729	18
English Departments	\$26,816	48 82 00	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045	48 82 00 42	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045	48 82 00 42	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045 882 7,090	48 82 00 42 39 40	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045	48 82 00 42 39 40	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045 882 7,090	48 82 00 42 39 40	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045 882 7,090 9,750	82 00 42 39 40	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045 882 7,090	82 00 42 39 40	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045 882 7,090 9,750 6,499	82 00 42 39 40 00	\$293,729	18
English Departments	\$26,816 12,641 12,550 10,045 882 7,090 9,750	82 00 42 39 40 00		
English Departments	\$26,816 12,641 12,550 10,045 882 7,090 9,750 6,499 15,635	39 40 00 93 45	101,911	89

Brought forward  III. Natural and Exact Sciences:	• • • • • • • • • • • • • •	\$395,641 07
Architecture (less gift)	\$23,451 49	
Astronomy	9,972 51	
Botany	6,104 82	
Chemistry (less receipts)	36,499 75	
Engineering Departments (less re-		
ceipts)	39,852 01	
Geology and Anthropology (less		
gift)	9,861 07	
Mathematics (less contribution		
from Barnard College)	16,174 45	
Mechanics	10,770 65	
Metallurgy	7,614 44	
Mineralogy (less sale)	6,200 00	
Mining	10,250 00	
Physics	19,791 97	
Zoölogy (less Income of DaCosta		
Fund)	10,794 04	
TT7 C 1 1 C T		207,337 20
IV. School of Law		36,314 87
V. School of Political Science (less		. 0
from Barnard College, etc.) VI. School of Medicine:	• • • • • • • • • • • • • • • • • • • •	49,742 84
	ф <sub></sub> 066 0.	
Anatomy (less receipts)  Physiological Chemistry (less re-	\$20,866 84	
ceipts)	7,979 38	
Clinical Instruction	7,979 30	
Materia Medica and Therapeutics.		
Obstetrics and Gynecology	7,518 94 12,500 00	
Pathology (less receipts)	30,417 51	
Physiology (less receipts)	13,192 73	
Practice of Medicine	13,192 73	
Surgery	12,439 80	
dargery		131,455 20

\$820,491 18

# OTHER OUTLAYS PROVIDED FOR BY THE INCOME AND ACCUMULATIONS OF TRUST FUNDS FOR SPECIAL PURPOSES

Departmental:		
Center Fund for Music	\$5,454 63	;
DaCosta Fund for Zoölogy	3,493 02	
Dyckman Fund for Zoölogy	400 00	•
Gebhard Fund for German	80 <b>0</b> 00	•
Trust Fund for Psychology (part)	1,000 00	
Library, for Purchase of Books:		\$11,147 65
Avery Architectural Collection	\$1,004 40	
Barnard Library Funds	2,512 02	
Cotheal Fund	266 73	
Drisler Classical Fund	696 74	
Law-Book Trust Fund	316 61	
		4,796 52
Fellowships, Scholarships, and Prizes:	ф	
Barnard Fellowship Bunner Medal	\$400 00	
Chanler Historical Prize	8o oc	
	45 00	
Grant Squires Prize	250 00	
Illig Medal	50 00	
McKim Fellowships	1,400 00	
Moffat Scholarship	90 00	
Mosenthal Fellowship	600 00	
Pulitzer Scholarships	2,410 00	
Schermerhorn Scholarship	225 00	
Schiff Fellowship	600 00	
Stuart Scholarship	240 00	
Tyndall Fellowship	648 00	
Clark Scholarship, School of		
Medicine	670 00	
Harsen Examination Prizes, School of Medicine		
Harsen Prizes of Clinical Re-	1,150 00	
ports, School of Medicine	250 00	
Harsen Prize Expenses, School	250 00	
of Medicine	15 00	
Stevens Triennial Prize, School		
of Medicine	200 00	
		9,323 00
Carried forward		\$25,267 17

Brought forward		\$25,267 17
Jacobi Ward in Roosevelt Hos-		
pital (Income of Trust Fund		
forwarded.)	\$1,021 24	
Seidl Fund. (Income of Trust		
Fund to Mrs. Seidl.)	466 67	
Sloane Maternity Hospital. (In-		
come of Trust Fund forwarded.)	12,500 00	
Trowbridge Fund. (Income of		
Trust Fund to Mrs. Trow-		
bridge.)	500 00	
Vanderbilt Clinic. (Income of		
Trust Fund forwarded.)	5,650 <b>0</b> 0	
Waring Fund (to Mrs. Waring)	2,000 00	
Waring Fund (to Miss Waring)	2,000 00	
		24,137 91
		\$49,405 08
		Ψ <del>+9,403</del> 00

## OTHER OUTLAYS PROVIDED FOR BY RECEIPTS FOR DESIGNATED PURPOSES

DESIGNATED FUR	LOSES		
Departmental:			
Anatomy, for supplies	\$1,150	00	
Architecture: Salaries	3,000	00	
Astronomy: Lectureship in Celes-			
tial Mechanics	1,000	00	
Chemistry: Supplies	12,713	70	
Civil Engineering: Departmental			
Appropriation	40	22	
Educational Administration: Lec-			
tures	650	00	
Educational Administration:	- A [2]		
Paris Exposition in 1900	231	14	
Educational Administration:			
Printing	34	88	
Educational Administration:			
Trustees' Reception, February			
22, 1900	2,594	92	
Carried forward	-		\$21,414 86
			w ) r-T

Brought forward	\$21,414	86		
Electrical Engineering: Special				
Equipment Fund, 1900	1,973	40		
Geology and Palæontology: De-				
partmental Appropriation	1,200	00		
Mechanical Engineering: Special	0			
Fund for Equipment	3,228	95		
Mechanics: Special Equipment				
Fund, 1900	713	10		
Metallurgy: Special Equipment				
Fund, 1900	559	33		
Mineralogy: Departmental Ap-				
propriation	220	00		
Mining: Special Equipment for				
Laboratory	807	40		
Mining: Special Equipment				
Fund, 1900	797	78		
Music: Salaries	1,500	00		
Oriental Languages: Salaries	500	00		
Oriental Languages: Departmen-				
tal Appropriation	500	00		
Pathology: Supplies	33	48		
Physiological Chemistry: Sup-				
plies	556	18		
Physiology: Departmental Ap-				
propriation	43	18		
Psychology and Anthropology:				
Salaries	2,500	00		
Psychology and Anthropology:	70			
Special Equipment Fund, 1900	487	87		
Political Science: Salaries (from		•		
Barnard College, etc.)	11,100	00		
Zoölogy: from gift for Marine				
Biological Laboratory	500	00		
Zoölogy: Senff Zoölogical Ex-				
pedition	335	26		
Zoölogy: Special Equipment				
Fund, 1900	578	40		
Zoölogy: Special Fund for Equip-	4.050	0.4		
ment	4,258	24	Ø== 66 ·	6.
Carried forward			\$57,664	03

Brought forward		\$57,664	63
Books and Binding	\$552 99		
John D. Crimmins Collection	10 33		
James Loeb Fund	44 17		
William G. Low Fund	91 52		
Special Fund, 1898	4,018 77		
Special Fund, 1899	7,463 10		
Special Fund in History, 1898	367 28		
Special Fund for Purchase of	· .		
Books in Sanskrit	ı 84		
		12,550	00
Fellowships, Scholarships, and Prizes:		,00	
Alumni Association Prize, Col-			
lege	\$50 <b>0</b> 0		
Alumni Fellowships, School of	# 5		
Medicine	1,500 00		
Annual Fellowship (University	-,5		
Settlement Society)	500 00		
Seligman Prize Essay	150 00		
Toppan Prize in Municipal Law.	150 00		
Toppan Titze in intimerpal Edw.		2,350	00
		-,00	
		\$72,564	63

### RECEIPTS FOR PERMANENT PURPOSES

Avery Fund (Gift of Mr. and Mrs. S. P. Avery) Trust Fund for Psychology (Gift of Mr. John D.	\$ 5,000	00
Rockefeller)	100,000	00
Carl Schurz Library Fund	10,000	00
Carl Schurz Fellowship Fund	10,000	00
Alexander Moncrief Proudfit Fellowship Fund	12,400	00
Maria McLean Proudfit Fellowship Fund in Medi-		
cine	12,400	00
Seth Low, being final payment for construction of		
the Library	600,000	00
From a Friend, for a new building to be dedicated		
to the religious and spiritual activities of the		
students of the University	100,000	00
Charles Bathgate Beck Legacy—on account of Re-		
siduary Estate	6,000	00
Alexander M. Welch Gift	839	00
John Jay Jenkins Legacy	500	00
Edgar J. Nathan Gift	250	00
	\$857,389	00

#### INVESTMENT OF TRUST FUNDS

JUNE 30, 1900

Avery Architectural Fund:

Gift of Samuel P. Avery and Mary Ogden Avery in memory of their deceased son, Henry Ogden Avery. The income of the fund to be applied to the purchase of books relating to architecture, decorations, and allied arts. Established in 1890.

\$15,000 Lehigh Valley Railroad Co.'s 4½ per cent. First Mortgage Bonds, due 1940.....

\$5.000 Northern Pacific Railroad Co.'s (Prior Lien Railway and Land Grant) 4 per cent. Gold Bonds, due 1997.....

Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Manhattan, due 1904, at 4 per cent.

\$15,000 00

10,000 00

Barnard Fellowship Fund:

Legacy from the late President Barnard (who died in 1889) to support a fellowship to be entitled "The Barnard Fellowship for Encouraging Scientific Research."

Certificate No. 22, Series 232, issued by the Lawyers' Mortgage Insurance Company, secured by Bond and Mortgage on property on Church Street near White Street, Borough of Manhattan, due on or before March 27, 1902, at 4 per cent.....

10,000 00

\$40,000 00

Carried forward.....

5,000 00

\$30,000 00

Brought forward..... \$40,000 00 Barnard Library Fund: The residuary estate of the late President Barnard was left to the Trustees of Columbia College to constitute a fund under the name of "The Barnard Fund for the Increase of the Library," the income of which is to be devoted to the purchase of books, especially those relating to physical or astronomical science. But out of the income of this fund so much as may be necessary is to be applied in procuring a gold medal of the bullion value of not less than \$200, to be styled "The Barnard Medal for Meritorious Service to Science" and to be awarded every five years on the judgment of the National Academy of Science of the United States. medal will be next awarded in June, 1905. Sir,000 Buffalo, Rochester & Pittsburg Railroad Co.'s 5 per cent. General Mortgage Gold Bonds, due 1937..... \$10,960 57 \$10,000 Illinois Central Railroad Co.'s 4 per cent. Bonds, due 1953..... 7,950 67 Mortgage deed of property at Litchfield, Conn., at 5 per cent. 3,500 00 \$35,000 Columbia College 3 per cent. Mortgage Gold Bonds, due 1000 35,000 00 Carried forward..... \$40,000 00

Brought forward..... \$57,411 24 \$40,000 00 Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Manhattan, due 1904, at 4 per cent. 4,590 40 62,001 64 Margaret Barnard Fund: The residuary estate of the late Margaret Barnard (who died in 1889), widow of the late President Barnard, was left to the Trustees of Columbia College "to augment the sum left by my late husband." \$16,000 Columbia College 3 per cent. Mortgage Gold Bonds, due 1909..... \$16,000 00 Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Manhattan, due 1904, at 4 per cent. 231 67 16,231 67 Beck Funds: The late Charles Bathgate Beck (who died in 1894) bequeathed the sum of \$10,000 to be applied as follows: \$2000 to found one free scholarship, the income to be applied "to the free yearly tuition and education in said College of one student forever, under such terms and conditions as the

\$118,233 31

rules of said College and said Trustees shall prescribe." The

Carried forward.....

Brought forward		\$118,233 31
Beck Scholarship Fund:		
\$2000 Lehigh Valley Terminal Railroad Co.'s 5 per cent. First Mortgage Gold Bonds, due		
	\$2,000 00	
Beck Prize Fund:	φ2,000 00	
\$8000 Lehigh Valley Terminal		
Railroad Co.'s 5 per cent. First		
Mortgage Gold Bonds, due		
1940	8,000 00	
Bennett Prize Fund:		10,000 00
Gift of James Gordon Bennett.  The income of the fund, or a medal of equal value, to be given for an "Essay in English Prose upon some subject of contemporaneous interest in the domestic or foreign policy of the United States." Established in 1893.  \$1000 West Shore Railroad Co.'s 4 per cent. First Mortgage Bond, due 2361  Bunner Prize Fund:  Gift of friends of the late Henry Cuyler Bunner. The income of the fund to be used to provide every year the "H. C. Bunner Medal," to be given to		1,000 00
the student who shall present Carried forward		\$129,233 31

Brought forward..... \$129,233 31 the best essay on an assigned subject in American Literature. Established in 1896. Certificate No. 29, Series 232, issued by the Lawyers' Mortgage Insurance Co., secured by Bond and Mortgage on property on Church Street, near White Street, Borough of Manhattan, due on or before March 27, 1,000 00 Center Fund: Gift of Mary E. Ludlow in memory of her son, the late Robert The income of the Center. fund to be applied either to the salary of a Professor of Music, or other instructors in music, or to Fellowships or Scholarships in Music, or to be used in any one or more of these ways. or such other ways as shall in the judgment of the Trustees tend most effectively to elevate the standard of musical instruction in the United States and to offer the most favorable opportunities for acquiring instruction of the higher order. Established in 1896. \$4000 Belleville & Carondelet Railroad Co.'s 6 per cent. First Mortgage Bonds, due 1923.... \$4,574 00

Carried forward.....

\$6000 Georgia Pacific Railroad Co.'s 6 per cent. First Mortgage Bonds, due 1922.....

\$130,233 31

6,885 oo

Brought forward \$75,000 Columbia College 3 per	\$11,459 00	\$130,233 31
cent. Mortgage Gold Bonds, due 1909 \$16,000 Northern Pacific Rail- road Co.'s (Prior Lien Railway	75,000 00	
and Land Grant) 4 per cent. Gold Bonds, due 1997  Bond and Mortgage on property on Schenectady Avenue,	16,000 00	
Borough of Brooklyn, due July, 1899, at 5 per cent  Bond and Mortgage on property on Sterling Street, Borough of Brooklyn, due 1902, at 5 per	6,000 00	
centBond and Mortgage on property on Malbone and Sterling Streets, Borough of Brooklyn,	4,000 00	
due August 15, 1904, at 5 per cent	8,750 00	
hattan, due 1904, at 4 per cent.	2,315 50	102 524 50
Real Estate (uninventoried): 320 to 334 Flatbush Avenue, Borough of Brooklyn, and 129 West 17th Street, Borough of Manhattan.		123,524 50
Chanler Prize Fund:  Bequest of J. Winthrop Chanler, of the Class of 1847, to found an annual prize for "the best original manuscript essay in English prose on the History		
Carried forward		\$253,757 81

\$253,757 81

Brought forward.....

of Civil Government in America, or some other historical subject." Established in 1878.

\$1000 St. Paul, Minneapolis, & Manitoba Railroad Co.'s 4½ per cent. Consolidated Mort-	
gage Bond, due 1933	1,000 00
Columbia Fellowship Fund:	
Established by the Trustees for	
a travelling fellowship in the	
Department of Architecture, in	
recognition of the liberality of	
Mr. F. Augustus Schermerhorn,	
of the Class of 1868, to this	
Department. This fellowship	
is awarded in every even-num-	
bered year. Established in 1889.	
\$13,000 Lehigh Valley Railroad	
Co.'s 4½ per cent. First Mort-	
gage Bonds, due 1940	13,000 00
Cotheal Fund:	
Gift of Mrs. James R. Swords and Mrs. Samuel Lawrence as	
a memorial to their brother,	
Alexander I. Cotheal. The in-	
come of the fund to be used	
and applied to the purchase of	
books in the Oriental Lan-	
guages, or relating to Oriental	
Countries. Established in 1896.	
Bond and Mortgage on property	
No. 437 East 86th Street, Bor-	
ough of Manhattan, due 1901,	
at $4\frac{1}{2}$ per cent	6,000 00
Curtis Fund:	ŕ
Gift of the George William Curtis	
Memorial Committee to estab-	
Carried forward	\$273,757 81

Brought forward..... lish a fellowship in the School of Political Science in Columbia University, to bear the name and to perpetuate the memory of the late George William Curtis. The holder of the fellowship to devote himself to the study of the science of government, with a special view to its application to the then existing condition of the United States, or of the State or City of New York, and to publish a monograph on some subject relating to the then existing condition of the United States, etc. Established in 1800.

\$10,000 Scioto Valley & New England Railroad Co.'s 4 per cent. First Mortgage Gold Bonds, due 1989......

DaCosta Fund:

The late Charles M. DaCosta, a member of the Class of 1855 (who died in 1890), bequeathed to the Trustees of Columbia College \$100,000. Of this sum the Trustees, on October 6, 1891, set apart \$80,000 for the endowment of a Chair in the Department of Biology. This sum has been increased by the profits of certain investments.

\$20,000 Central Railroad Company of New Jersey 5 per cent. Consolidated Mortgage Bonds, due 1037.....

\$277,757 81

10,000 00

\$20,000 00

Carried forward.....

\$283,757 81

Brought forward\$66,000 Columbia College 3 per cent. Mortgage Gold Bonds, due	\$20,000 00	\$283,757 81
Certificate No. 62, Series 232, issued by the Lawyers' Mortgage Insurance Co., secured by Bond and Mortgage on property on Church Street, near White Street, Borough of Manhattan, due on or before March 27,	66,000 00	
1902, at 4 per cent  Interest on Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Man-	500 00	
hattan, due 1904, at 4 per cent.	76 83	
		86,576 83
Drisler Classical Fund:  Gift of President Low, for the endowment of "The Henry Drisler Classical Fund" for the purchase of books, maps, charts, busts, and such other equipment as will tend to make instruction in the classics more interesting and effective. Established in 1894.		
Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Man- hattan, due 1904, at 4 per cent.		10,000,00
Dyckman Fund:		10,000 00
Gift of Isaac Michael Dyckman in memory of his uncles, Dr. Jacob Dyckman and Dr. James Dyckman, both of the College of Physicians and Surgeons, to		
Carried forward		\$380,334 64

\$10,000 Scioto Valley & New England Railroad Co.'s 4 per cent. First Mortgage Gold Bonds, due 1989 ......

Gebhard Fund:

Bequest of Frederick Gebhard to found a Professorship of the German Language and Literature. Established in 1843.

\$20,000 West Shore Railroad Co.'s Guaranteed 4 per cent. First Mortgage Bonds, due 2361.....

Illig Fund:

Bequest of William C. Illig, of the Class of 1882, School of Mines. The income of the fund to be applied to the purchase of prizes to be awarded to students of the graduating class of the School of Mines, who shall, in the judgment of the Faculty, have merited the same by commendable proficiency in such scientific subjects as the Faculty may designate. Established in 1898.

Carried forward.....

\$380,334 64

10,000 00

20,000 00

\$410,334 64

Brought forward		\$410,334	64
1902, at 4 per cent		2,000	00
Law-Book Trust Fund:		, , , , ,	
Created by act of the Trustees on			
March 5, 1900, by the con-			
solidation of the Alexander			
Coles Gift (\$1500); John Jay			
Jenkins Legacy (\$500); John			
McKeon Fund (\$1000); Samp-			
son Simson Fund (\$1000); and Edgar J. Nathan Gift			
(\$250). The income to be			
applied to the purchase of law			
books.			
Certificates No. 23, 25, and 61,			
Series 232, issued by the Law- yers' Mortgage Insurance Co.,			
secured by Bond and Mortgage			
on property on Church Street,			
near White Street, Borough of			
Manhattan, due on or before			
March 27, 1902, at 4 per cent.	\$4,000 00		
Cash on hand	250 00		
		4,250	00
Loubat Fund:			
Gift of Joseph F. Loubat (Duc			
de Loubat) for prizes to be			
given every five years for works			
in the English Language on the History, Geography, Archeol-			
ogy, Ethnology, Philology, or			
Carried forward		\$416,584	64

Brought forward  Numismatics of North America. First prize, \$1000; second prize, \$400. The prizes will be next awarded in June, 1903. Established in 1892.  \$7000 Buffalo, Rochester, & Pittsburg Railroad Company's 5 per cent. General Mortgage		\$416,584 64
Bonds, due 1937  Certificate No. 12,680 of the New York Life Insurance and Trust	\$6,979 75	
Company at 3 per cent	20 25	
T. I. D. D. I		7,000 00
Loubat Prize Fund:  The accumulated income of the "Loubat Fund," from which are awarded every five years prizes to the amount of \$1400, is kept as a separate fund.  Cash deposited in the New York Life Insurance and Trust Company at 2½ per cent  Cash on hand	95° °7 35° °°	
McKim Fellowship Fund: Gift of Charles F. McKim for two travelling fellowships in the Department of Architecture. These fellowships are awarded in every odd-numbered year. Established in 1889. \$20,000 St. Paul, Minneapolis, and Manitoba Railroad Co.'s 4½ per cent. Consolidated Mortgage Bonds, due 1933		1,300 07 20,000 00
Carried forward		\$444,884 71
Carried forward		ф444,004 71

Brought forward..... \$444,884 71 Member of Class of '85 Fund: The gift of Grant Squires of the Class of 1885. The income of the fund to be awarded every five years to defray the expense of a sociological investigation that promises results of scientific value. The award will next be made in June, 1905. Established in 1895. Certificate No. 24, Series 232, issued by the Lawyers' Mortgage Insurance Company, secured by Bond and Mortgage on property on Church Street, near White Street, Borough of Manhattan, due on or before March 27, 1902, at 4 per cent...... 1,050 00 Moffat Scholarship Fund: Bequest of William B. Moffat, M.D., of the Class of 1838, "for the purpose of one or more scholarships for the education and instruction of one or more indigent students." Established in 1863. \$2000 St. Paul, Minneapolis, & Manitoba Railroad Co.'s 41/2 per cent. Consolidated Mortgage Bonds, due 1933..... 2,000 00 Mosenthal Fellowship Fund: Gift of friends of the late Joseph Mosenthal to found a Fellowship in Music. Established 1898.

Certificate No. 30, Series 232, issued by the Lawyers' Mortgage Carried forward.....

\$447,934 71

Brought forward...........

Insurance Co., secured by Bond and Mortgage on property on Church Street, near White Street, Borough of Manhattan, due on or before March 27,

Perkins Fellowship Fund:

Bequest of Willard B. Perkins, who died in 1897. The income of the fund to be expended every four years for a travelling scholarship in the Architectural Department. The fellowship will be next awarded in June, 1902.

Certificate No. 27, Series 232, issued by the Lawyers' Mortgage Insurance Company, secured by Bond and Mortgage on property on Church Street, near White Street, Borough of Manhattan, due on or before March 27, 1902, at 4 per cent.....

Alexander Moncrief Proudfit Fellowship Fund:

Legacy (of \$15,000) from the late Alexander Moncrief Proudfit (who died in 1899) to found a fellowship to be known as the "Alexander Moncrief Proudfit Fellowship in Letters," to be held only by such persons as, being the sons of native-born American parents, shall have taken the degree of Bachelor of Arts after a three years' residence in Columbia College, and

Carried forward.....

7,500 00

\$447,934 71

5,700 00

\$461,134 71

Brought forward	~	\$461,134	71
\$12,000 Northern Pacific Rail- road Co.'s (Prior Lien Railway and Land Grant) 4 per cent. Gold Bonds, due January 1,			
Cash on hand	\$12,000 00 400 00		
Pulitzer Scholarship Fund:  Gift of Joseph Pulitzer to found thirty scholarships for graduates of City Grammar Schools.  One half may be used on improvements on the New Site at 116th Street. Established in 1893. (The gift was \$100,000.)  \$25,000 Niagara Falls Power Co.'s 5 per cent. First Mortgage Consolidated Bonds, due 1932.  \$29,000 Manhattan Elevated Railroad Co.'s 4 per cent. Consolidated Bonds, due 1990	22,500 00 27,948 75	12,400 50,448	
Schermerhorn Scholarship Fund:  Bequest of John J. Schermerhorn, of the Class of 1825, "for the purpose of free scholarships, the nomination to which shall vest in my nearest male rela- tive in each generation during his lifetime." Established in 1877.		50,448	75
Carried forward		\$523,983	46

Brought forward	\$523,983	16
\$5000 St. Paul, Minneapolis, &	φ523,903	40
Manitoba Railroad Company's		
4½ per cent. Consolidated Mort-		
gage Bonds, due 1933	T 000	
Schiff Fellowship Fund:	5,000	00
Gift of Jacob H. Schiff to found		
a fellowship in the School of		
Political Science, to be annually		
awarded by the Faculty on the		
nomination of the donor or his		
eldest living male descendant,		
etc. Established in 1898.		
Certificate No. 28, Series 232,		
issued by the Lawyers' Mort-		
gage Insurance Company, se-		
cured by Bond and Mortgage		
on property on Church Street,		
near White Street, Borough of		
Manhattan, due on or before		
March 27, 1902, at 4 per cent	15,000	00
Carl Schurz Fellowship Fund:		
From the Carl Schurz Fund Com-		
mittee to establish this Fellow-		
ship in honor of Carl Schurz.		
Established April 2, 1900.		
Interest in Bond and Mortgage for		
\$250,000 on "Wheelock Prop-		
erty," 161st Street and Broad-		
way, Borough of Manhattan,		
due 1904, at 4 per cent	10,000	00
Carl Schurz Library Fund:		
From the Carl Schurz Fund Com-		
mittee to establish this fund in		
honor of Carl Schurz, the in-		
come to be devoted to the		
purchase of books, maps,		
pamphlets, and the like, in the		
field of the German Language	***	_
Carried forward	\$553,983	46

\$553,983 46

Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Manhattan, due 1904, at 4 per cent...

10,000 00

#### Seidl Fund:

The proceeds of a memorial performance held at the Metropolitan Opera House on March 23, 1899, in honor of the late Anton Seidl. The income of the fund to be paid to Mrs. Seidl during her lifetime and thereafter "to be awarded at least every second year to the most promising candidate, either man or woman, prepared to devote himself to the study of musical composition at Columbia University, or elsewhere in this country or abroad."

\$12,000, Scioto Valley & New England Railroad Co.'s 4 per cent. First Mortgage Gold Bonds, due 1898.....

12,000 00

# Stuart Scholarship Fund:

The gift of Mrs. Cornelia A. Atwill, in memory of her grandsons, Sidney Barculo Stuart, of the Class of 1880, and Eugene Tolman Stuart, of the Class of 1881, to found two scholarships in the College, to be known as "Stuart Scholarships." Established in 1895.

Carried forward.....

\$575,983 46

Brought forward..... Certificate No. 26, Series 232, issued by the Lawyers' Mortgage Insurance Company, secured by Bond and Mortgage, on property on Church Street. near White Street, Borough of Manhattan, due on or before March 27, 1902, at 4 per cent..

\$575,983 46

6,000 00

# Trowbridge Fund:

Gift of the Alumni Association of the School of Mines as a memorial to the late Professor Trowbridge, to establish the "William Petit Trowbridge Fellowship in Engineering." The income of the fund, to be not less than \$500 per year, is payable to the widow of Professor Trowbridge during the pleasure of the Trustees. Established in 1893.

\$10,000 Lehigh & Hudson Railroad Co.'s 6 per cent. (reduced to 5 per cent.) First Mortgage Gold Bonds, due 1911.....

10,000 00

# Trust Fund for Psychology:

Gift of John D. Rockefeller as an endowment of the head professorship of the Psychological Department of Columbia Uni-Received November versity. 17, 1899.

\$50,000 Wisconsin Central Railroad Co.'s 4 per cent. First General Mortgage Gold Bonds, due July 1, 1949..... \$45,750 00

Carried forward.....

\$591,983 46

Brought forward \$50,000 Northern Pacific Rail- road Co.'s 4 per cent. (Prior Lien Railway and Land Grant) Gold Bonds, due January 1, 1997	\$45,750 oo 50,750 oo	\$591,983 46
Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Man- hattan, due 1904, at 4 per cent.	3,500 00	
		100,000 00
Tyndall Fellowship Fund:		
Gift of the late Professor John		
Tyndall of London. The income of the fund to be applied		
to the support of "American		
Pupils who may have shown		
decided talents in Physics, etc."		
Established in 1885.		
\$11,000 West Shore Railroad		
Co.'s 4 per cent. First Mortgage		
Bonds, due 2361		10,945 50
Waring Funds:  The Chamber of Commerce of		
the State of New York, in the		
latter part of the year 1898,		
raised by public subscription		
the sum of \$100,000 to perpet-		
uate the memory of the late		
Col. George E. Waring. The		
income of the fund (to be not less than \$4000 per year) to		
be paid semi-annually to the		
widow and daughter of Col.		
Waring during their lifetime		
and, thereafter, "the income		
shall be devoted to the purpose		
Carried forward		\$702,928 96

Brought forward of instruction in municipal affairs in such manner as the President and Board of Trustees of said College may direct."  FOR MRS. WARING. \$14,000 Illinois Central R. R.		\$702,928 96
Co.'s 4 per cent. Bonds, due		•
\$8000 Scioto Valley & New England R. R. Co.'s 4 per cent.	\$14,000 00	
First Mortgage Gold Bonds,	0	
due 1989  Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Man-	8,000 00	
hattan, due 1904, at 4 per cent.	28,000 00	
FOR MISS WARING.		
\$10,000 Scioto Valley & New		
England R. R. Co.'s 4 per cent. First Mortgage Gold Bonds,		,
due 1989  Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Manhattan, due 1904, at 4 per cent.	10,000 00	
No. 1. Collaboration From J. Collaboration C.		100,000_00
Clark Scholarship Fund, School of Medicine:		
Bequest of the late Alonzo Clark, M.D., formerly President of the College of Physicians and Surgeons, for the purpose of promoting the discovery of new facts in Medical Science. First prize bestowed October 1, 1894.		
Carried forward		\$802,928 96

Brought forward	\$3, <sup>8</sup> 74	94	\$802,928	96
Bond and Mortgage on property No. 333 West 31st Street, Borough of Manhattan, due				
1899, at 5 per cent	10,000	00		
27, 1902, at 4 per cent	125	<b>o</b> 6		
			14,000	00
Harsen Prize Fund, School of Medicine Founded by the late Jacob Harsen, M.D., in 1859. The income of the fund to be given in prizes as follows: Clinical Reports; three prizes: First prize \$150; second prize \$75; third prize \$25. Proficiency at Examinations; three prizes: First prize \$500: second prize \$300; third prize \$200.  Twenty-eight shares of United New Jersey Railroad and Canal Company's stock (par \$100 each)	6,382			
Carried forward	15,000	00	Φ0-60	
Carried forward			\$816,928	90

Brought forward	\$21,382 25	\$816,928 96
1902, at 4 per cent	1,624 94	
Interest in Bond and Mortgage for \$250,000 on "Wheelock Property," 161st Street and Broadway, Borough of Man-	8,000 00	
hattan, due 1904, at 4 per cent.	106 91	
Jacobi Ward Fund, School of Medicine:  Gift of an anonymous donor "to endow a ward for children in the Roosevelt Hospital."  Established in 1899 as a memorial to the donor's wife and in honor of Dr. Abraham Jacobi.		31,114 10
\$25,000 New Jersey Junction Railroad Co.'s 4 per cent. First Mortgage Bonds, due 1986 Bond and Mortgage on Property No. 209 East 17th St., Borough of Manhattan, due 1900, at 4	25,000 00	
per cent	7,500 00	
Carried forward	7,500 00	\$848,043 06

Brought forward..... \$47,500 00 \$848,043 06 Certificate No. 59, Series 232, issued by the Lawyers' Mortgage Insurance Co., secured by Bond and Mortgage on property on Church Street, near White Street, Borough of Manhattan, due on or before March 27, 1902, at 4 per cent..... 2,500 00 50,000 00 Maria McLean Proudfit Fellowship Fund, School of Medicine: Legacy (of \$15,000) from the late Alexander Moncrief Proudfit (who died in 1899) to found a fellowship to be known as the "Maria McLean Proudfit Fellowship," to be held only by such persons as being the sons of native-born American parents shall, under the direction of the Medical Faculty of Columbia College, pursue advanced studies in medicine, and shall, while enjoying this fellowship or the income thereof, remain unmarried. Established in 1800. \$12,000 Northern Pacific Railroad Co.'s (Prior Lien Railway and Land Grant) 4 per cent. Gold Bonds, due Jan. 1, 1997... 12,000 00 Cash on hand..... 400 00 12,400 00 Smith Prize Fund, School of Medicine: Gift of relatives, friends and pupils of the late Joseph Mather Smith,

\$910,443 06

M.D., as a memorial of his ser-Carried forward.....

Brought forward	\$910,443	06
Eleven shares of the United New Jersey Railroad and Canal Co.'s		
stock (par \$100 each)	2,337	81
Stevens Prize Fund, School of Medi-	,557	
cine:		
Established by the late Alexander		
Hodgdon Stevens, M.D., for-		
merly President of the College		
of Physicians and Surgeons.		
The income of the fund is awarded every three years for		
the best medical essay covering		
original research as determined		
by the Committee in charge of		
the Prize. To be next awarded		
in June, 1903.		
Nine shares of the United New		
Jersey Railroad and Canal Co.'s		
stock (par \$100 each)	1,899	88
Sloane Maternity Hospital Fund, School of Medicine:		
Gift of William D. Sloane and		
Emily Thorne Sloane, his wife,		
as an endowment to the Sloane		
Maternity Hospital to make all		
its beds free in perpetuity. Es-		
tablished in 1889.		
Michigan Central Railroad Co.'s		
(Detroit and Bay City) First		
Mortgage 5 per cent. Bonds,		
due 1931\$125,000 00	Φ	
Carried forward	\$914,680	75

Brought forward	\$125,000 00	\$914,680 75
1933	125,000 00	-
		250,000 00
Vanderbilt Clinic Endowment Fund, School of Medicine: Gift of Cornelius, William K., Frederick W., and George W. Vanderbilt, as a perpetual memorial to their father, the late William H. Vanderbilt, and as an endowment for the Vanderbilt Clinic. Established in 1896. Michigan Central Railroad Co.'s		
(Detroit and Bay City) First Mortgage 5 per cent. Bonds,		
due 1931	100,000 00	
tension Bonds, due 1926 Canada Southern Railroad Co.'s Second Mortgage 5 per cent.	10,000 00	
Bonds, due 1913	5,000 00	
	<del></del>	115,000 00
		\$1,279,680 75

John McL. Nash,

Treasurer.

# MISCELLANEOUS GIFTS RECEIVED DURING ACADEMIC YEAR 1899-1900

(Gifts in money mentioned in the Treasurer's Statement, and gifts to the Library stated in the Librarian's Report are omitted.)

#### GENERAL

Duc de Loubat, Portrait of himself.

Society of the Daughters of 1812, Tablet of the War of 1812.

Friends of Hamilton Fish, Jr., Tablet in memory of Hamilton Fish, Jr.

Mrs. Robert Goelet and Children, Bronze statue representing "Alma Mater," in memory of Robert Goelet, Class of 1860, to be placed on pedestal in front of Library Building.

Class of 1874, Columbia College, Four-faced clock, to surmount the central book-case in the main reading-room of the Library.

Wawepex Society, \$200 for the continuation of the John D. Jones Scholarship for the summer of 1900.

Mr. A. T. Rowland, President of the Union Boiler Tube Co., Pittsburg, Pa., Complete apparatus for cleaning the boiler tubes in the boilers of the University.

Friends of Hamilton Y. Castner, Bronze tablet to his memory, to be placed in either Havemeyer Hall or Memorial Hall.

A Friend of the University, \$231.14 to be added to the appropriation for expenses of the exhibit at the Paris Exposition.

#### DEPARTMENT OF ASTRONOMY

J. H. Ladew, \$100 to enable the Department to make suitable arrangements for observing the November meteoric shower, 1899. F. Augustus Schermerhorn,

\$50 to enable the Department to make suitable arrangements for observing the November meteoric shower, 1899.

William Underhill Moore,

Statuette of the late Charles William Hackley, S.T.D., formerly Professor of Mathematics and Astronomy in Columbia College.

Mrs. P. A. Malleson,

Object Glass for a telescope, with a photographic lens, both eight inches in diameter. These lenses are presented in the name of the late Mrs. Manning M. Knapp, of Hackensack, N. J., in memory of her son, Joseph Mattison Knapp, a graduate of Columbia College in the Class of 1878.

#### DEPARTMENT OF CHEMISTRY

H. A. Wheeler, Standard Tile Co., St. Louis, Mo., Samples of roofing tile.

Tiffany & Co., New York,

Set of three pitchers illustrating process of silver plating.

Beacon Lamp Co., New Brunswick, N. J.,

Specimens illustrating manufacture of incandescent electric lamps.

Fabenfabriken of Elberfeldt Co.,

A collection of fifty-five samples illustrating the Bayer pharmaceutical products, in glass case.

John A. Roebling's Sons Co., Trenton, N. J.,

Large collection of electrical conductors and cables, in glass case.

General Incandescent Arc Light Co., New York, Enclosed alternating arc lamp.

Fritzsche Brothers, New York,

Set of 27 synthetic perfumes and natural flower oils.

G. G. Howland, General Manager, New York Herald, Set of specimens illustrating the preparation of stereotype plates.

E. G. Acheson, Niagara Falls, New York, Specimens of silica distilled by electric heat, and collection of specimens illustrating manufacture of artificial graphite by electric heat.

T. H. Feary, Buffalo, New York,
Specimens of zinc blende and other minerals from Cherokee
County, Kansas, and Jasper County, Mo.

J. A. Haskell,

Specimens of smokeless powder.

A. D. Brittingham,

Specimens of cordite.

Wm. Pickhardt & Kuttroff,

Specimens illustrating synthetic indigo.

Prof. Arthur H. Elliott, Gas oil products.

General Incandescent Arc Light Co., Wright Discount Meter.

Edison Manufacturing Co., Orange, N. J., Collection of celluloid films for kinetoscope.

Mr. Sheppard, Edison Illuminating Co., New York, Edison meter, old style.

W. A. Gallup, Arnold Print Works, North Adams, Mass., Photographs of calico-printing machines.

Appert Glass Co., Port Allegany, Pa., Collection of mammoth Appert glass vessels.

S. A. Goldschmidt, Columbia Chemical Works, Brooklyn, Collection of ammonia salts.

Miss Kate Unger,

Two specimens of silk portrait-weaving, from Haledon Silk Mills.

West Disinfecting Co., New York, Collection of disinfectants.

C. F. Chandler,

Samples of cloth made of paper-pulp fibre, island of Paney, Philippines.

Berkfeld Filter Co., New York, A Berkfeld Filter.

John Carbut, Phila., Pa.,

Collection of Eureka celluloid ribbon films for animatedpicture machines.

Robert Coleman Kemp and Alfred W. Gardiner,

Collection of photographs and lantern slides illustrating the application of photography to the physiological investigation of the effects of anæsthetics on the kidneys.

#### DEPARTMENT OF MATHEMATICS

Friends of the University,

\$500 to enable the University to subscribe \$100 annually, for five years, beginning January 1, 1900, to the support of a new journal of research in Pure Mathematics, to be known as "The Transactions of the American Mathematical Society."

#### DEPARTMENT OF MECHANICAL ENGINEERING

The Dake Engine Company,
Dake Square Piston Engine.

C. W. Hunt, John Fritz, Rear-Admiral Melville, Stevenson Taylor, Andrew Fletcher, Edward Coykendall, H. S. Haines and friends, and F. A. Schermerhorn,

\$2000 to complete the equipment for scientific purposes of

the locomotive "Columbia."

F. C. Waller, for the Alcohol & Yeast Mfg. Co., Delft, Holland, Apparatus intended to be used as a means of determining the constitution of the products of combustion in a steam boiler.

Gerard Beekman,

\$250 for current expenses.

The Fairbanks Company, New York,

Two scales for the weighing of water to be fed to the boiler of the locomotive "Columbia" when it is under test tor its economy.

E. G. Barratt,

Ammonia Compressing Ice-Machine.

E. R. Holden, \$600.

E. B. Holden, \$100.

F. Aug. Heinze, \$100,

For the purchase of absorption dynamometers, which are to be attached to the supporting wheels under the driving wheels of the locomotive "Columbia."

The Willard & Fricke Mfg. Co., Rochester, N. Y.,

Valuable outfit representing the appliance of the company as above for the automatic recording of time devoted to specific operations in the shop.

Crosby Steam Gauge and Valve Company,

Nine steam-engine indicators with the newest improvements and electrical attachments.

Abner Doble Company,

Water-wheel outfit with regulating nozzle, complete and ready for test.

London and Northwestern Railway Co., London, England, Forty-eight photographs illustrating the practice of the Company in its locomotive and other mechanical departments.

Allan Town Rolling Mills, Allentown, Pa.,

Model showing two sections of the permanent caisson for a light-house and the apparatus for lowering the same into place.

B. F. Sturtevant Co.,

Large centrifugal fan with its casing and with independent engine to drive it.

#### G. A. Suter,

Cost for installing large centrifugal fan with its casing and with independent engine to drive it.

### J. B. & J. M. Cornell,

Series of wrought-iron gratings for the installation of the locomotive "Columbia" and the Allis experimental engine.

#### DEPARTMENTS OF MINING AND METALLURGY

Collection of minerals, scientific books, instruments, and tools; also collection of horn.

#### DEPARTMENT OF ORIENTAL LANGUAGES

#### The Trustees of the Temple Emanu-El,

\$500 to be used at the discretion of the President in the Department of Oriental Languages.

## William I. Walter, New York,

\$300 for American School for Oriental Study and Research at Palestine.

# A Friend through Prof. Richard Gottheil,

Collection of Egyptian antiquities.

#### DEPARTMENT OF PSYCHOLOGY AND ANTHROPOLOGY

#### Anonymous,

\$207 to cover cost of partition in laboratory.

\$150 to cover cost of card catalogue of psychological literature.

\$335 to cover cost of apparatus.

#### DEPARTMENT OF ROMANCE LANGUAGES

#### Holland Society,

Money to cover the cost of a course of lectures on Dutch Literature.

## French Lecture Fund, 1900,

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French Chamber of Commerce of New York	100
James H. Hyde	100
Robert J. Hoguet	50
Isidor Wormser	50
Henry Clews	25
Mrs. Esther Herrman	25
George L. Rives.	25
William C. Schermerhorn	25







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